

ORAL ARGUMENT NOT YET SCHEDULED

No. 23-1174 (L), 23-1221

**UNITED STATES COURT OF APPEALS FOR THE
DISTRICT OF COLUMBIA CIRCUIT**

CITY OF PORT ISABEL, *et al.*,

Petitioners,

v.

FEDERAL ENERGY REGULATORY COMMISSION,

Respondent.

RIO BRAVO PIPELINE COMPANY, LLC, *et al.*,

Intervenors for Respondent.

On Petition for Review of Order of the
Federal Energy Regulatory Commission

JOINT APPENDIX

VOLUME I OF I

COUNSEL LISTED ON INSIDE COVER

Dated: March 9, 2024

Attorneys for Carrizo Comecrudo Tribe of Texas, Sierra Club, and Vecinos para el Bienestar de la Comunidad Costera, Petitioner:

Nathan Matthews
Sierra Club
2101 Webster St., Suite 1300
Oakland, CA 94612
415-977-5695
nathan.matthews@sierraclub.org

Tom Gosselin
Sierra Club
P.O. Box 4998
Austin, TX 78723
424-346-3276
tom.gosselin@sierraclub.org

Lisa M. Diaz
Sierra Club
910 Julia Street,
New Orleans, LA 70113
305-336-2258
lisa.diaz@sierraclub.org

Attorney for City of Port Isabel:

Gilberto Hinojosa
531 E. St. Francis St.
Brownsville, Texas 78520
956-544-4218
ghinojosa@ghinojosalaw.net

Attorneys for Respondent, FERC:

Matthew R. Christiansen
General Counsel
Robert H. Solomon
Solicitor
Robert M. Kennedy
Senior Attorney
robert.kennedy@ferc.org
Federal Energy Regulatory Commission
Washington, D.C. 20426

Attorneys for Intervenor, Respondent-Intervenor Rio Bravo Pipeline Company, LLC:

Jeremy C. Marwell
Matthew X. Etchemendy
V INSON & ELKINS LLP
2200 Pennsylvania Avenue, NW
Suite 500 West
Washington, DC 20037
202-639-6507
jmarwell@velaw.com

Attorneys for Respondent-Intervenor Rio Grande LNG, LLC:

Varu Chilakamarri
David L. Wochner
John Longstreth
K&L GATES LLP
1601 K Street, NW
Washington, DC 20006
202-778-9000
varu.chilakamarri@klgates.com

TABLE OF CONTENTS

Record No.	Record Materials	Page No.
R.3011	“Remand Order” — Order on Remand and Amending Section 7 Certificate re Rio Grande LNG, LLC et al. under CP16-454 et al.	JA001
R.3080	“Rehearing Order “ — Order Addressing Arguments etc. re Rio Grande LNG, LLC, et al.	JA177
R.653	Comments of U.S. Environmental Protection Agency, Region 6, Wetland Section (6WQ-EM)	JA239
R.669	Application for Authorization of Rio Grande LNG, LLC and Rio Bravo Pipeline Company, LLC under CP16-454, et al.	JA240
R.1212	Technical Support Document: Social Cost of Carbon (Ex. 82 to Sierra Club et al. Comments on Draft EIS)	JA242
R.1277	“EIS” — Final Environmental Impact Statement for the Rio Grande LNG Project et al.	JA246

R.1314	“Authorization Order” — Order Granting Authorizations under Sections 3 And 7 of the Natural Gas Act re Rio Grande LNG, LLC et al. under CP16-454 et al.	JA407
R.1329	Request for Rehearing of Sierra Club, et al. of the November 22, 2019 Order under CP16-454.	JA509
R.1349	“2020 Rehearing Order” — Order on Rehearing and Stay re Rio Grande LNG, LLC et al. under CP16-454 et al.	JA521
R.1382	Volume No. 6, Final Design General, Supplement 1 of Rio Grande LNG, LLC under CP16-454.	JA599
R.1392	Rio Bravo Pipeline Company, LLC submits its Abbreviated Application for an Amendment to the Certificate of Public Convenience and Necessity and for Related Authorizations for its Rio Bravo Pipeline Project under CP20-481.	JA602
R.1417	Protest and Motion to Intervene of Sierra Club, Vecinos para el Bienestar de la Comunidad Costera, Shrimpers and Fishermen of the RGV, the Carrizo Comecrudo Tribe of Texas, and Save RGV from LNG under CP20-481.	JA605

R.1453	Letter order approving Rio Grande LNG, LLC's 04/15/2020 and supplemented on 05/11/2020 et al., design change proposals.	JA613
R.2368	Petition for Review filed in U.S. Court of Appeals for D.C. Circuit of Vecinos para el Bienestar de la Comunidad Costera under CP16-454	JA616
R.2374	Environmental Assessment Report for Rio Bravo Pipeline Company, LLC's Rio Bravo Pipeline Project Amendment under CP20-481.	JA619
R.2384	Order Addressing Arguments Raised on Rehearing re Rio Grande LNG, LLC under CP16-454. Commissioner Glick and Commission Clements are dissenting with a joint separate statement attached.	JA632
R.2822	Letter requesting Rio Grande LNG, LLC et al. to file a response to environmental information request within 30 days to address deficiencies noted in the U.S. Court of Appeals etc. under CP16-454 et al.	JA647
R.2825	Rio Grande LNG, LLC submits Response to February 3, 2022 Environmental Information Request for the Rio Grande LNG Project under CP16-454.	JA652

R.2902	Rio Bravo Pipeline Company, LLC submits Response to May 2, 2022 and May 10, 2022 Environmental Information Requests for the Rio Bravo Pipeline Project under CP16-455, et al.	JA674
R.2913	Letter requesting Rio Grande LNG, LLC to file a response to environmental information request within 30 days to assist in FERC's analysis of the authorized LNG export terminal for the Rio Grande LNG Project under CP16-454.	JA675
R.2915	Rio Grande LNG, LLC submits Response (Part 1 of 2) to August 16, 2022 Environmental Information Request for the Rio Grande LNG Project under CP16-454.	JA676
R.2920	Rio Grande LNG, LLC submits Response to August 16, 2022 Environmental Information Request for the Rio Grande LNG Project under CP16-454.	JA685
R.2922	Notice Seeking Public Comment on Responses to Information Requests re Rio Grande LNG, LLC et al. under CP16-454 et al.	JA686
R.2926	Comments on Responses to Information Requests of Sierra Club, et. al. under CP16-454, et al.	JA689

	Rio Grande Carbon Capture and Sequestration Application (Exhibit to R.2926)	JA714
	World Monuments Watch, Garcia Pasture (Exhibit to R.2926)	JA720
	Promising Practices for EJ Methodologies in NEPA Reviews (Exhibit to R.2926)	JA721
	Rio Grande LNG Project with Carbon Capture and Sequestration, Resource Report 1 (Exhibit to R.2926)	JA725
R.2944	Rio Grande LNG, LLC submits supplemental information to August 16, 2022 Environmental Information Request for the Rio Grande LNG Project under CP16-454.	JA728
R.2956	Comments of Vecinos Para el Bienestar de la Comunidad Costera, et al. under CP16-454, et al.	JA734
R.2962	Letter requesting Rio Grande LNG, LLC to file a response to the environmental information request within 15 days to address deficiencies noted in the U.S. Court of Appeals for the D.C. Circuit's etc. for the Rio Grande LNG Project under CP16-454.	JA739

R.2967	Rio Grande LNG, LLC submits Response to FERC's January 6, 2023 Environmental Information Request for the Rio Grande LNG Project under CP16-454.	JA743
R.2973	Rio Grande LNG, LLC Submits Response to FERC February 10, 2023 Environmental Information Request for the Rio Grande LNG Project under CP16-454.	JA786
R.2976	Letter requesting Rio Bravo Pipeline Company, LLC to file a response to the environmental information request within 5 days to address deficiencies noted etc. for the Rio Bravo Pipeline Project et al. under CP16-455 et al.	JA799
R.3021	“Rehearing Request” — Sierra Club et al. submits Request for Rehearing of the April 21, 2023 Order under CP16-454 et al.	JA800
R.3029	Motion for Leave to Answer and Answer of Rio Bravo Pipeline Company, LLC to the May 22, 2023 Request for Rehearing of the Movants under CP16-454, et al	JA862

183 FERC ¶ 61,046
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Willie L. Phillips, Acting Chairman;
James P. Danly, Allison Clements,
and Mark C. Christie.

Rio Grande LNG, LLC

Docket Nos. CP16-454-003

CP16-454-000

Rio Bravo Pipeline Company, LLC

CP16-455-000

CP16-455-002

CP20-481-000

ORDER ON REMAND AND AMENDING SECTION 7 CERTIFICATE

(Issued April 21, 2023)

1. The United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit) has remanded¹ the Commission's orders authorizing construction and operation of Rio Grande LNG, LLC's (Rio Grande) proposed liquified natural gas terminal project (Rio Grande LNG Terminal) and Rio Bravo Pipeline Company, LLC's (Rio Bravo) proposed pipeline project (Rio Bravo Pipeline Project),² directing the Commission to: (1) "explain whether 40 C.F.R. § 1502.21(c) calls for [the Commission] to apply the social cost of carbon protocol or some other analytical framework, as 'generally accepted in the scientific community' within the meaning of the regulation, and if not, why not";³ and (2) "explain why it chose to analyze the projects' impacts only on [environmental justice] communities in census blocks within two miles of the project sites, or else analyze the projects' impacts on [environmental justice] communities within a different

¹ *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321 (D.C. Cir. 2021) (*Vecinos*).

² *Rio Grande LNG, LLC*, 169 FERC ¶ 61,131 (2019) (Order Granting Authorizations under Sections 3 and 7 of the Natural Gas Act) (Authorization Order), *order on reh'g*, 170 FERC ¶ 61,046 (2020) (Rehearing Order). The D.C. Circuit also remanded, in the same opinion, the Commission's order in *Texas LNG Brownsville LLC*, which the Commission addressed in a separate order issued concurrently. *Texas LNG Brownsville LLC*, 183 FERC ¶ 61,047 (2023).

³ *Vecinos*, 6 F.4th at 1330.

radius of each project site.”⁴ Further, the court directed the Commission to revisit its public interest determination under sections 3 and 7 of the Natural Gas Act (NGA).⁵

2. Separately, on June 16, 2020, in Docket No. CP20-481-000, Rio Bravo filed an application pursuant to section 7(c) of the NGA⁶ and Part 157 of the Commission’s regulations⁷ to amend its certificate of public convenience and necessity issued in Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act in Docket No. CP16-455-000, which authorized the construction and operation of the Rio Bravo Pipeline Project.⁸ As more fully described below, Rio Bravo proposes to reduce the number of authorized compressor stations from three to one, increase the horsepower at the remaining compressor station, eliminate certain measurement facilities, change the operating pressure of the pipelines and header system, and increase the diameter of one of two parallel pipelines (Amendment Project).

3. This order first addresses and grants Rio Bravo’s proposed Amendment Project in Docket No. CP20-481-000, subject to certain conditions. Second, the order addresses the issues remanded to the Commission by the court in *Vecinos*. Specifically, on remand we supplement our environmental analysis of both the Rio Grande LNG Terminal and the Rio Bravo Pipeline Project, as amended, by: (1) addressing the argument regarding the social cost of carbon and 40 C.F.R. § 1502.21(c); and (2) updating our analysis of the projects’ environmental justice impacts consistent with the Commission’s current practice. We reaffirm that the Rio Grande LNG Terminal is not inconsistent with the public interest under NGA section 3, and the Rio Bravo Pipeline Project, as amended, is required by the public convenience and necessity under NGA section 7, as conditioned in the Authorization Order and as modified herein.

I. Background

4. Rio Grande and Rio Bravo are Texas limited liability companies. Rio Grande is a wholly-owned subsidiary of NextDecade LNG, LLC, and Rio Bravo is a direct subsidiary of Spectra Energy Partners, LP (Spectra Energy), which is an indirect, wholly-owned

⁴ *Id.* at 1331.

⁵ *Id.* at 1331-32.

⁶ 15 U.S.C. § 717f(c).

⁷ 18 C.F.R. pt. 157 (2022).

⁸ Rio Bravo June 16, 2020 Application to Amend Certificate of Public Convenience and Necessity (Amendment Application).

subsidiary of Enbridge Inc.⁹ Upon commencing operations of its Rio Bravo Pipeline Project, Rio Bravo will become a natural gas company within the meaning of section 2(6) of the NGA.¹⁰ As its operations will not be in interstate commerce, Rio Grande will not be a natural gas company as defined in section 2(6) of the NGA, although it will be subject to the Commission's jurisdiction under NGA section 3.

A. 2019 Authorization Order

5. On November 22, 2019, the Commission authorized, under section 3 of the NGA, Rio Grande to construct and operate a new liquified natural gas (LNG) terminal designed to produce a nominal capacity of up to 27 million metric tonnes per annum (MTPA) of LNG for export (Authorization Order).¹¹ The project facilities will occupy 750.4 acres of land on a 984.2-acre parcel on the northern embankment of the Brownsville Ship Channel in Cameron County, Texas¹² and include five natural gas liquefaction trains, each with a nominal capacity of 5.4 MTPA;¹³ four full-containment LNG storage tanks, each with a

⁹ At the time the Authorization Order issued granting Rio Bravo its requested certificate, Rio Bravo was a wholly-owned subsidiary of NextDecade LNG, LLC. On March 2, 2020, Spectra Energy acquired Rio Bravo.

¹⁰ 15 U.S.C. § 717a(6).

¹¹ Authorization Order, 169 FERC ¶ 61,131 at P 5. In August 2016, Rio Grande received authorization from the Department of Energy, Office of Fossil Energy (DOE) to export the project's full capacity, which is equivalent to 1,318 billion cubic feet (Bcf) annually (approximately 3.6 Bcf per day (Bcf/d)) equivalent of natural gas in the form of LNG to countries with which the United States has a Free Trade Agreement (FTA). *Rio Grande LNG, LLC*, DOE/FE Docket No. 15-190-LNG, Order No. 3869 (2016). Assuming a gas density of 0.7 kg/m³, 3.6 Bcf/d is 26.1 MTPA, which is roughly equivalent to the authorized 27 MTPA. On February 10, 2020, DOE issued an order authorizing Rio Grande to export LNG to non-FTA nations, but with which the U.S. still permits such trade. *Rio Grande LNG, LLC*, DOE/FE Docket No. 15-190-LNG, Order No. 4492 (2020).

¹² The parcel is owned by the Brownsville Navigational District, a political subdivision of Texas that operates the Port of Brownsville. Rio Grande's parent company, NextDecade, executed an Option to Lease the acreage from the Brownsville Navigational District. Authorization Order, 169 FERC ¶ 61,131 at P 7 n.12.

¹³ On April 15, 2020, Rio Grande requested that the Commission approve a design change in its implementation plan for the Rio Grande LNG Terminal to reduce the Rio Grande LNG Terminal's number of liquefaction trains from six to five and to optimize parts of the liquefaction design to increase the liquefaction capacity of the five remaining trains from 4.5 million metric tons per annum (MTPA) to 5.4 MTPA each,

net capacity of approximately 180,000 cubic meters (m³); two LNG carrier loading berths; one 1,500-foot-diameter turning basin; LNG truck loading and unloading facilities with four loading bays; two natural gas liquids truck loading bays; and other facilities such as administrative buildings, a central control building, a workshop, a warehouse, electrical equipment enclosures, a communication system, and other support structures.¹⁴

6. The Authorization Order also issued a certificate of public convenience and necessity (certificate), under section 7 of the NGA, to Rio Bravo to construct and operate a new interstate natural gas pipeline system designed to provide up to 4.5 billion cubic feet per day (Bcf/d)¹⁵ of firm natural gas transportation capacity from several interconnects in the vicinity of the Agua Dulce Hub in Nueces County, Texas, to Rio Grande's liquefied LNG export terminal on the Brownsville Ship Channel in Cameron County. As approved in the Authorization Order, the Rio Bravo Pipeline comprises: a 2.4-mile-long header system, 135.5 miles of parallel 42-inch-diameter pipelines (referred to as Pipelines 1 and 2); three compressor stations; four metering sites along the header system; two interconnect booster compressor stations, each with a metering site; and other appurtenant facilities.¹⁶ The pipeline project will be constructed in two phases,¹⁷

while keeping the total export capacity at 27 MTPA. The Commission granted that request, but we note that the 2019 authorization, as reviewed by the D.C. Circuit in *Vecinos*, authorized and considered the impacts associated with six natural gas liquefaction trains. *See Rio Grande LNG, LLC*, 174 FERC ¶ 61,048, at P 4 (2021) (rehearing order affirming design changes authorized by Commission staff's August 13, 2020 Letter Order).

¹⁴ Authorization Order, 169 FERC ¶ 61,131 at PP 6-7. On November 17, 2021, Rio Grande filed an application pursuant to section 3 of the NGA to amend its authorization to incorporate carbon capture and sequestration (CCS) systems into the approved site and design of the terminal. Rio Grande LNG, LLC, Application for Limited Amendment to Section 3 Authorization, Docket No. CP22-17-000 (Nov. 17, 2021). This application is pending before the Commission.

¹⁵ 4.5 Bcf/d is the equivalent of 4,500,000 dekatherms (Dth) per day assuming one Dth equals one Mcf of gas.

¹⁶ Authorization Order, 169 FERC ¶ 61,131 at PP 1, 9.

¹⁷ Pursuant to the Authorization Order, Rio Bravo's project is required to be made available for service by November 22, 2026. Construction has not commenced for the pipeline project and Rio Bravo has not sought an extension of time.

with the in-service date of Phase 1 coinciding with the commencement of the Rio Grande LNG Terminal operations.¹⁸

7. The Commission determined, based on the findings in the final Environmental Impact Statement (EIS) for the projects,¹⁹ that the projects' direct and indirect impacts on environmental resources would be temporary or reduced to less-than-significant levels by the implementation of appropriate mitigation measures.²⁰ As relevant to this proceeding, the Commission concluded that it could not determine the projects' impacts on the environment caused by GHG emissions nor could it determine the significance of the projects' contribution to climate change.²¹ The Commission also found that neither the construction nor operation of the projects would result in disproportionately high or adverse environmental and human health impacts on environmental justice communities.²² The Commission agreed with the conclusions presented in the final EIS and found that the projects, if constructed and operated as described in the final EIS, are environmentally acceptable actions.²³

B. Rehearing Order

8. On December 23, 2019, Sierra Club and eight other petitioners jointly (Sierra Club) sought rehearing of the Authorization Order. Sierra Club raised numerous concerns, including air quality impacts, environmental justice impacts, mitigation measures, greenhouse gas emissions, and the Commission's public interest determination. Specifically, Sierra Club stated that the Commission violated NEPA by failing to take a

¹⁸ On March 6, 2020, Commission staff issued a notice to proceed for limited site preparation activities for the Rio Grande LNG facilities. Additionally, on October 14, 2022, in docket number CP16-454-004, the Commission granted Rio Grande a two-year extension of time, to November 22, 2028, to construct and make available for service the Rio Grande LNG Terminal. *Rio Grande LNG, LLC*, 181 FERC ¶ 61,032 (2022), *order on reh'g*, 182 FERC ¶ 61,027 (2023).

¹⁹ The projects' final EIS was issued on April 26, 2019. *See* Commission staff, Rio Grande LNG Project Final EIS, Docket Nos. CP16-454-000 and CP16-455-000 (issued Apr. 26, 2019) (Final EIS).

²⁰ Authorization Order, 169 FERC ¶ 61,131 at P 22.

²¹ *Id.* P 109. *See also* Final EIS at 4-479 – 4-482.

²² Authorization Order, 169 FERC ¶ 61,131 at P 98. *See also* Final EIS at 4-233 – 4-238; 4-468 – 4-469.

²³ Authorization Order, 169 FERC ¶ 61,131 at P 133.

hard look at whether environmental justice communities will bear a disproportionate share of the negative environmental consequences from the projects.²⁴ Sierra Club also asserted that the Commission's conclusions regarding its inability to determine whether the projects' GHG emissions and contribution to climate change were significant, and its reasoning as to why it would not use the social cost of carbon protocol to assess the impacts from the projects' GHG emissions were arbitrary.²⁵

9. On January 23, 2020, the Commission denied rehearing. The Commission affirmed the Authorization Order's decision to not calculate or apply the social cost of carbon protocol.²⁶ The Commission concluded that the final EIS adequately identified and addressed impacts on environmental justice communities,²⁷ and reaffirmed the conclusion from the final EIS and Authorization Order that there would not be any disproportionately high or adverse environmental and human health impacts on those communities.²⁸ Subsequently, Sierra Club petitioned for review of the Authorization and Rehearing Orders in the D.C. Circuit.

C. The Court's Remand Order

10. On August 3, 2021, the D.C. Circuit remanded the Authorization and Rehearing Orders, holding that the Commission's NEPA analyses of the projects' impacts on climate change and environmental justice communities were deficient under the Administrative Procedure Act (APA), and thus, the Commission "must also revisit its determinations of public interest and convenience under Sections 3 and 7 of the NGA."²⁹ Specifically, the court held that the Commission failed to address the petitioners' argument concerning the applicability of the Council on Environmental Quality's (CEQ) regulations with respect to whether the social cost of carbon protocol is a "generally accepted" analytical tool for assessing the significance of GHG impacts, thereby

²⁴ Sierra Club Request for Rehearing and Stay at 5, 34.

²⁵ *Id.* at 6.

²⁶ Rehearing Order, 170 FERC ¶ 61,046 at P 103.

²⁷ The Rehearing Order stated that "Commission staff concluded that within the census block groups intersected by a two-mile radius around the pipeline facilities and LNG terminal site, the minority population percentages in 24 of the 25 affected tracts exceed the EPA's categorical thresholds to be minority populations or low-income populations, or in most cases both." *Id.* P 64.

²⁸ *Id.* P 98.

²⁹ *Vecinos*, 6 F.4th at 1331.

rendering the analysis of the projects' GHG emissions deficient.³⁰ The court directed the Commission on remand to: "explain whether 40 C.F.R. § 1502.21(c) calls for [the Commission] to apply the social cost of carbon protocol or some other analytical framework, as 'generally accepted in the scientific community' within the meaning of the regulation, and if not, why not."³¹

11. The court also held that the Commission's decision to limit its environmental justice analysis of the projects' impacts to those affecting communities in census blocks within two miles of the project sites was arbitrary,³² given that the EIS determined that certain environmental effects of the projects would extend beyond that radius (e.g., the court noted that air quality impacts could occur within a radius of 31 miles).³³ The court directed the Commission on remand to explain why it chose to analyze the projects' impacts only on communities within a two-mile radius, or, in the alternative, to analyze the projects' impacts on communities within a different radius from each project site, and to determine whether the Commission's environmental justice conclusion still holds.³⁴

12. Additionally, because the Commission's analyses of the projects' impacts on climate change and environmental justice communities were deficient, the court directed the Commission to revisit its public interest and public convenience and necessity determinations.³⁵

D. 2020 Rio Bravo Pipeline Amendment Project Proposal

13. On June 16, 2020, in Docket No. CP20-481-000, Rio Bravo filed an application to amend the Rio Bravo Pipeline certificate to: (1) reduce the number of authorized

³⁰ *Id.* at 1329.

³¹ *Id.* at 1329-30. 40 C.F.R. § 1502.21(c) (2022) provides that "[i]f . . . information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because . . . the means to obtain it are not known, the agency shall include within the environmental impact statement . . . [t]he agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community." In its 2020 rulemaking, CEQ redesignated § 1502.22, "[i]ncomplete or unavailable information" as § 1502.21 in the final rule.

³² *Vecinos*, 6 F.4th at 1331.

³³ *Id.* at 1330.

³⁴ *Id.* at 1331.

³⁵ *Id.*

compressor stations from three to one; (2) increase the horsepower at the remaining compressor station; (3) eliminate certain measurement facilities; (4) change the maximum allowable operating pressure of the pipelines and header system; and (5) increase the diameter of one of the two authorized parallel pipelines. Specifically, Rio Bravo proposes to:

- increase the diameter of Pipeline 1 from 42-inches to 48-inches;
- extend both Pipeline 1 and Pipeline 2 by 0.2 miles, increasing the length of each pipeline from 135.5 miles to 135.7 miles;
- increase the horsepower (hp) of Compressor Station 1 in Kleberg County, Texas, from 180,000 hp to 282,000 hp by replacing the six 30,000-hp natural gas turbine compressor units currently approved with four 43,000-hp natural gas turbine compressor units and two 55,000-hp electric-driven compressor units;
- eliminate a meter station at Compressor Station 1;
- eliminate the 180,000-hp Compressor Station 2, in Kenedy County, Texas, including all related facilities;
- eliminate the 180,000-hp Compressor Station 3 in Cameron County, Texas, including all related facilities except the gas custody transfer meter and pig receivers; and
- eliminate the two interconnect booster stations, and related meter site, in Kenedy County, Texas.

14. The proposed Amendment Project facility modifications described above will increase the capacity associated with Phase 1 (consisting of Pipeline 1, the header system, Compressor Station 1, and related aboveground facilities, including meter stations) from 2.25 Bcf/d to 2.6 Bcf/d, and will decrease the capacity associated with Phase 2 (consisting of Pipeline 2 and the remaining facilities) from 2.25 Bcf/d to 1.9 Bcf/d. The total design capacity of the project will remain 4.5 Bcf/d, as certificated in the Authorization Order.³⁶ Rio Bravo also proposes to increase the maximum allowable operating pressure (MAOP) of each pipeline from 1,480 pounds per square inch gauge (psig) to 1,825 psig, and to decrease the header system's MAOP from 1,480 psig to 1,200 psig. Other than the 0.2-mile extensions,³⁷ Rio Bravo does not propose in its

³⁶ Authorization Order, 169 FERC ¶ 61,131 at P 9.

³⁷ The 0.2-mile extensions of Pipelines 1 and 2 would be constructed within the boundary of the Rio Grande LNG Terminal in workspace formerly designated for

Amendment Project application any changes to the pipeline route approved in the Authorization Order.³⁸

15. Rio Bravo also requests approval to revise the project rates and its *pro forma* tariff records to: (1) reflect an increase in the overall estimated cost of constructing the project facilities; (2) establish initial recourse rates for Phase 1 service; and (3) establish revised initial recourse rates for the entire project following the Phase 2 in-service date.³⁹ In addition, in order to reflect the addition of electric-driven turbine compressor units at reconfigured Compressor Station 1, Rio Bravo proposes to apply initial electric power charges and an electric power charge tracker and true-up mechanism upon the in-service date of Phase 2. Rio Bravo further proposes to revise the fuel rate percentages to reflect the modified project design.

16. Rio Bravo estimates that the total cost of the Rio Bravo Pipeline Project, as amended, is approximately \$2.435 billion, an increase of approximately \$260 million from its original cost estimate.

II. Rio Bravo Amendment Project

A. Procedural Issues: Notice, Interventions, and Comments

17. On June 25, 2020, the Commission issued public notice of Rio Bravo's amendment application, establishing a deadline of July 16, 2020, for filing interventions

Compressor Station 3, which Rio Bravo now proposes to eliminate. Therefore, the proposed extension of the pipeline system would not impact new landowners or result in new resource impacts beyond those previously analyzed as part of the Authorization Order.

³⁸ As noted in the Rehearing Order, Rio Bravo is required by the October 2, 2019 Biological Opinion issued by the U.S. Fish and Wildlife Service (FWS) to revise the pipeline route to reduce direct impacts to ocelot habitat. Rehearing Order, 170 FERC ¶ 61,046 at P 32. Specifically, Rio Bravo must re-route the pipelines between milepost (MP) 69.9 to MP 79.2, to avoid 62.6 acres of habitat. Accordingly, Rio Bravo is required to, prior to receiving authorization to commence construction of the pipeline project, submit for Commission approval either a variance request or an amendment, as appropriate, for the route realignment it agreed to with FWS. Rehearing Order, 170 FERC ¶ 61,046 at P 32. Rio Bravo has not yet submitted a variance request or amendment application to address the Biological Opinion.

³⁹ Although the Authorization Order granted Rio Bravo's proposal to construct and place its pipeline project into service in phases, phased rates were not initially proposed or considered.

and comments. Notice of the application was published in the *Federal Register* on July 1, 2020.⁴⁰

18. John Young; Mary Branch; Maria Galasso; Rio Grande LNG Gas Supply, LLC and Rio Grande; and Sierra Club, Vecinos para el Bienestar de la Comunidad Costera, Shrimpers and Fishermen of the RGV, the Carrizo Comecrudo Tribe of Texas, and Save RGV from LNG (collectively, Sierra Club) filed timely, unopposed motions to intervene.⁴¹

19. Sierra Club protests the Amendment Project on several grounds: (1) that the Commission lacks jurisdiction to modify the Authorization Order because petitions for review of the Commission's original authorization of the Rio Bravo Pipeline Project, together with the Rio Grande LNG Terminal, are pending before the D.C. Circuit;⁴² (2) that Rio Bravo has not justified, nor addressed the environmental impacts of, its requests to increase the diameter of Pipeline 1 and to increase the MAOP of both pipelines;⁴³ and (3) that the proposed design modifications "set the stage for" future expansions, the impacts of which must also be considered.⁴⁴

20. In response to the notice of application for the Amendment Project, we received numerous comments primarily addressing issues related to the Commission's prior approval of the Rio Grande LNG Terminal and the Rio Bravo Pipeline Project, which are outside the scope of the amendment proceeding.⁴⁵ Any comments that relate to the issues pending on remand are addressed below.

⁴⁰ 85 Fed. Reg. 39,554 (July 1, 2020).

⁴¹ Timely, unopposed motions to intervene are granted by operation of Rule 214 of the Commission's Rules of Practice and Procedure. 18 C.F.R. § 385.214(c)(1) (2022).

⁴² Sierra Club July 16, 2020 Protest and Motion to Intervene at 9-10 (Sierra Club Protest). We note that this issue is now moot and, thus, will not be discussed further in this order, as the D.C. Circuit remanded the Authorization Order on August 3, 2021. *See Vecinos*, 6 F.4th 1321.

⁴³ Sierra Club Protest at 10-12.

⁴⁴ *Id.* at 12-13.

⁴⁵ For example, numerous commenters expressed general opposition to LNG development. Others questioned the environmental analysis or public interest and need determinations underlying the Commission's prior approval of the projects in Docket Nos. CP16-454-000 and CP16-455-000. *See also* Commission staff December 21, 2020

21. Intervenors John Young, Mary Branch, and Maria Galasso generally take issue with Enbridge's acquisition, through its subsidiary, of the Rio Bravo Pipeline Project from NextDecade.⁴⁶ Enbridge's subsidiary Spectra Energy acquired Rio Bravo in March 2020, three months prior to Rio Bravo's filing of its Amendment Project application.⁴⁷ The intervenors suggest this change in ownership warrants a full re-examination of the certificate of public convenience and necessity issued for the Rio Bravo Pipeline. We disagree. Here, there was no change to the certificate holder (Rio Bravo), who remains subject to the Commission's jurisdiction and is responsible for all requirements of its certificate. A change to a certificate holder's parent company is not germane to this proceeding nor would it cause us to reevaluate the Commission's previous determination that authorizing the Rio Bravo Pipeline Project was in the public interest.⁴⁸ Similarly, the same intervenors note that the Commission authorized the projects in the same order and assert that Rio Bravo's ownership change should compel the Commission to reconsider and separately issue the project authorizations.⁴⁹ We find no reason to do so. Though a single order addressed the LNG terminal and associated pipeline system, the two projects were assigned separate, unconsolidated dockets and received separate authorizations under the NGA (a section 7 certificate for the pipeline

Environmental Assessment (Amendment Project EA) at 5-6 (tbl. 2) (identifying issues and comments outside scope of Amendment Project EA).

⁴⁶ See, e.g., Maria Galasso July 16, 2020 Comments; John Young July 10, 2020 Comments; Mary Branch July 9, and July 13, 2020 Comments.

⁴⁷ See *supra* note 9; Amendment Application at 6.

⁴⁸ See, e.g., *Wyckoff Gas Storage Co. LLC*, 127 FERC ¶ 61,107, at P 10 (2009) (finding, in part, that a company seeking an amendment of its certificate to authorize the transfer of passive ownership interest in certain facilities would not change any of the findings from the certificate order).

⁴⁹ See Maria Galasso July 16, 2020 Comments; John Young July 10, 2020 Comments; Mary Branch July 9, and July 13, 2020 Comments.

project⁵⁰ and a section 3 authorization for the LNG terminal),⁵¹ each subject to a particularized set of mandatory conditions.⁵²

22. On July 31, 2020, Rio Bravo submitted an answer responding to Sierra Club's protest and various individuals' comments.⁵³ Specifically, Rio Bravo provided additional information regarding: (1) the scope of the Amendment Project proceeding, including future expansions; (2) the proposed pipeline modifications in relation to the analysis included in the final EIS, including safety and alternatives analyses; and (3) the Commission's jurisdiction to act on the Amendment Project application. Although the Commission's rules do not permit answers to protests,⁵⁴ our rules provide that we may waive this provision for good cause.⁵⁵ We will accept Rio Bravo's answer here because it has provided information that assisted us in our decision making. The concerns raised by Sierra Club's protest, Rio Bravo's answer, and all substantive comments concerning the Amendment Project are addressed in Commission staff's December 21, 2020 Environmental Assessment (EA) and, as appropriate, below.

23. Sierra Club requested a trial-type hearing on Rio Bravo's amendment application.⁵⁶ Commission practice generally is not to hold an evidentiary, trial-type hearing where, as here, there are no material issues of fact in dispute that cannot be resolved on the basis of the written record.⁵⁷ As demonstrated by the discussion in this order, the existing written record is extensive and provides a sufficient basis to resolve the issues and comments in this proceeding. The Commission has satisfied the hearing requirement by giving all interested parties a full and complete opportunity to participate

⁵⁰ John Young commented that FERC should ensure the public and interested parties are aware that the Amendment Project is a modification of the projects' final EIS. This was explained in the Amendment Project EA.

⁵¹ Authorization Order, 169 FERC ¶ 61,131 at ordering paras. (A), (C).

⁵² *Id.* at app. (Environmental Conditions).

⁵³ Rio Bravo July 31, 2020 Answer (Rio Bravo Answer).

⁵⁴ 18 C.F.R. § 385.213(a)(2) (2022).

⁵⁵ 18 C.F.R. § 385.101(e) (2022).

⁵⁶ *See* Sierra Club July 16, 2020 Protest and Motion to Intervene at 13.

⁵⁷ *See, e.g., S. Union Gas Co. v. FERC*, 840 F.2d 964, 970 (D.C. Cir. 1988); *Dominion Transmission, Inc.*, 141 FERC ¶ 61,183, at P 15 (2012).

through evidentiary submission in written form.⁵⁸ We therefore decline to grant the request for a trial-type hearing.

B. Pipeline Amendment Project Discussion

24. Because the pipeline facilities will be used to transport natural gas in interstate commerce subject to the jurisdiction of the Commission, and relocating the approved facilities requires amending the certificate issued in the Authorization Order, Rio Bravo's request is subject to the requirements of subsections (c) and (e) of section 7 of the NGA.⁵⁹

1. Certificate Policy Statement

25. The 1999 Certificate Policy Statement provides guidance for evaluating proposals to certificate new construction.⁶⁰ The 1999 Certificate Policy Statement establishes criteria for determining whether there is a need for a proposed project and whether the proposed project will serve the public interest. It explains that, in deciding whether to authorize the construction of new pipeline facilities, the Commission balances the public benefits against the potential adverse consequences. The Commission's goal is to appropriately consider the enhancement of competitive transportation alternatives, the possibility of overbuilding, subsidization by existing customers, the applicant's responsibility for unsubscribed capacity, the avoidance of unnecessary disruptions of the environment, and the unneeded exercise of eminent domain in evaluating new pipeline construction.

26. Under this policy, the threshold requirement for applicants proposing new projects is that the applicant must be prepared to financially support the project without relying on subsidization from its existing customers. The next step is to determine whether the applicant has made efforts to eliminate or minimize any adverse effects the project might have on the applicant's existing customers, existing pipelines in the market and their captive customers, and landowners and communities affected by the route of the new pipeline facilities. If residual adverse effects on these interest groups are identified after

⁵⁸ See *Moreau v. FERC*, 982 F.2d 556, 568 (D.C. Cir. 1993).

⁵⁹ 15 U.S.C. § 717f(c), (e).

⁶⁰ *Certification of New Interstate Nat. Gas Pipeline Facilities*, 88 FERC ¶ 61,227 (1999), *clarified*, 90 FERC ¶ 61,128, *further clarified*, 92 FERC ¶ 61,094 (2000) (1999 Certificate Policy Statement). On March 24, 2022, the Commission issued an order converting the policy statements issued in February 2022 to draft policy statements. See *Certification of New Interstate Nat. Gas Facilities*, 178 FERC ¶ 61,197 (2022) (Order on Draft Policy Statements).

efforts have been made to minimize them, the Commission will evaluate the project by balancing the evidence of public benefits to be achieved against the residual adverse effects. This is essentially an economic test. Only when the benefits outweigh the adverse effects on economic interests will the Commission proceed to complete the environmental analysis where other interests are considered.

27. In the Authorization Order, the Commission applied the Certificate Policy Statement and found that the Rio Bravo Pipeline Project was required by the public convenience and necessity.⁶¹ Because Rio Bravo had no existing customers, the Commission found that there was no potential for subsidization by existing customers, or degradation of service to existing customers, as a result of the project.⁶² The proposed Amendment Project does not alter this finding.

28. The Amendment Project proposes facility modifications that will improve the hydraulic efficiency of the Rio Bravo Pipeline Project. The modified project design will provide Rio Bravo additional flexibility in meeting the needs of its shipper, Rio Grande LNG Gas Supply LLC (formerly RioGas Marketing, LLC), for supplying natural gas to the Rio Grande LNG Terminal. No other pipelines, or their captive customers, have filed adverse comments regarding Rio Bravo's proposal to amend the Rio Bravo Pipeline Project. Thus, we find that Rio Bravo's proposed amendment will not adversely affect its other pipelines and their captive customers.

29. We are satisfied that Rio Bravo has taken appropriate steps to minimize adverse impacts on landowners affected by the Amendment Project. The Amendment Project proposes to eliminate from the project's original design two compressor stations and two booster stations. By decreasing the project's aboveground footprint, the project modifications proposed here further reduce impacts to landowners and surrounding communities.

30. Accordingly, we find that with the proposed amendment Rio Bravo will not have adverse economic impacts on existing shippers or other pipelines and their existing customers, and that the project's benefits will continue to outweigh any adverse economic effects on landowners and surrounding communities. Therefore, we conclude

⁶¹ Authorization Order, 169 FERC ¶ 61,131 at P 32.

⁶² *Id.* P 29.

that the Amendment Project is consistent with the criteria set forth in the Certificate Policy Statement and analyze the environmental impacts of the proposal below.⁶³

2. Rates

a. Initial Recourse Rates

31. In the Authorization Order, the Commission approved Rio Bravo's proposed initial maximum monthly reservation charge of \$6.2927 per Dth for firm transportation service under Rate Schedule FTS and a usage charge of \$0.2069 per Dth for interruptible transportation service and parking and loan service under Rate Schedules ITS and PALS, respectively.⁶⁴ Due to the increased costs from the Amendment Project, Rio Bravo proposes to revise its initial rates and establish separate initial Phase 1 and Phase 2 recourse reservation and usage charges for firm service under Rate Schedule FTS, interruptible service under Rate Schedule ITS, and park and loan service under Rate Schedule PALS. Rio Bravo states that its revised rates are designed on the same basis as the rates the Commission approved in the Authorization Order,⁶⁵ including a capital structure of 50% debt and 50% equity, a cost of debt of 6.85%, a return on equity of 14%, and a depreciation rate of 2.50%.⁶⁶

32. Subsequently, in its August 20, 2020 response to a staff data request, Rio Bravo provided a revised cost of service and recalculated its proposed initial recourse rates for the Rio Bravo Pipeline Project, as amended, to correct its accumulated deferred income taxes calculation.⁶⁷ We use those revised cost of service and rates for the purposes of establishing the initial recourse rates below.

33. For Phase 1, Rio Bravo proposes a monthly reservation charge of \$7.4290 per Dth and a usage charge of \$0.0026 per Dth for service under Rate Schedule FTS. For service under Rate Schedules ITS and PALS, Rio Bravo proposes a rate of \$0.2468 per Dth

⁶³ See Certificate Policy Statement, 88 FERC at 61,745-46 (explaining that only when the project benefits outweigh the adverse effects on the economic interests will the Commission then complete the environmental analysis).

⁶⁴ Authorization Order, 169 FERC ¶ 61,131 at P 38. The Authorization Order accepted the initial rates subject to Rio Bravo recalculating its initial recourse rates in its compliance filing consistent with a straight-fixed variable rate design.

⁶⁵ Amendment Application at 17.

⁶⁶ *Id.* Ex. P at 9.

⁶⁷ Rio Bravo August 20, 2020 Data Response.

based on a 100% load factor equivalent of the Rate Schedule FTS rate.⁶⁸ The Phase 1 rates are based on a cost of service of approximately \$240 million and a design capacity of 32,313,600 Dth.⁶⁹

34. For Phase 2, which includes the cost of the Phase 1 facilities, Rio Bravo proposes a monthly reservation charge of \$7.5051 per Dth and a usage charge of \$0.0021 per Dth for service under Rate Schedule FTS. For service under Rate Schedules ITS and PALS, Rio Bravo proposes a rate of \$0.2489 per Dth based on a 100% load factor equivalent of the Rate Schedule FTS rate. The Phase 2 rates are based on a cost of service of approximately \$413 million and a design capacity of 55,080,000 Dth.⁷⁰ Once the Phase 2 facilities are placed in service, Rio Bravo's Phase 2 rates would become effective, and its Phase 1 rates would no longer apply.

35. We have reviewed Rio Bravo's proposed revised cost of service and initial rates and find that they are consistent with current Commission policy.

b. Fuel and Electric Power Cost Charge

36. In the Authorization Order, the Commission approved Rio Bravo's proposed initial fuel retainage percentage of 3.00%.⁷¹ For Phase 1, Rio Bravo proposes to revise its initial system fuel retainage percentage to 1.11%, which reflects a lower estimated initial fuel retainage in light of the Amendment Project's proposed design modifications. Following the in-service date of the Phase 2 facilities, Rio Bravo proposes a system fuel retainage percentage of 0.88%, which reflects the addition of two electric-driven compressor units for the additional 1.9 Bcf/d of capacity in Phase 2.

37. Rio Bravo states it has revised section 23 of the General Terms and Conditions (GT&C) of its tariff to include an incremental Electric Power Cost (EPC) charge to recover costs associated with the two electric-driven compressor units, including reservation and usage charges for applicable services. Rio Bravo proposes an annual true-up mechanism to determine the EPC adjustment to the reservation and usage charges, and to reconcile the EPC charge against the electric power costs incurred by Rio Bravo, as further detailed in GT&C section 23. Effective as of the Phase 2 in-service date, Rio Bravo proposes a maximum EPC reservation charge of \$0.2284 per Dth and a maximum EPC usage charge of \$0.0072 per Dth for Rate Schedule FTS and a maximum

⁶⁸ *Id.* Ex. P at 1.

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ Authorization Order, 169 FERC ¶ 61,131 at P 39.

EPC usage charge of \$0.0147 per Dth for Rate Schedules ITS and PALS. Rio Bravo also proposes a minimum EPC charge of \$0.0072 per Dth for Rate Schedules FTS, ITS, and PALS.⁷²

38. We accept Rio Bravo's revised initial system fuel retainage percentage and initial incremental EPC surcharges. In addition, while the Authorization Order directed Rio Bravo to file actual tariff records not less than 60 days prior to the commencement of interstate service, we revise that requirement and require Rio Bravo to file actual tariff records at least 30 days but not more than 60 days prior to the commencement of interstate service.

c. Tariff

39. As part of its Amendment Project application, Rio Bravo filed revisions to its *pro forma* open-access tariff applicable to services provided on its proposed pipeline. Rio Bravo proposes revisions to reflect its initial recourse rates for Phase 1 and 2. Rio Bravo also proposes to establish initial EPC charges that will apply upon the in-service date of Phase 2 and an EPC charge tracker and true-up mechanism. We approve the revised *pro forma* tariff as consistent with Commission policies.

d. Three Year Filing Requirement

40. As required by the Authorization Order,⁷³ Rio Bravo must file a cost and revenue study no later than three months after its first three years of actual operations of the full project facilities (i.e., Phase 1 and Phase 2 facilities) to justify its existing cost-based firm and interruptible recourse rates.⁷⁴ If, after two years from the in-service date of Phase 1, Rio Bravo has not begun construction of the Phase 2 facilities, Rio Bravo is directed to file the cost and revenue study three months after the first three years of actual operations of the Phase 1 facilities. Under either scenario, in that filing the projected units of service should be no lower than those upon which Rio Bravo's approved initial rates are based. The filing must include a cost and revenue study in the form specified in section 154.313 of the Commission's regulations to update cost of service data.⁷⁵ Rio Bravo's cost and revenue study should be filed through the eTariff portal using a Type of Filing Code 580.

⁷² Amendment Application, Ex. P at 1.

⁷³ Authorization Order, 169 FERC ¶ 61,131 at P 41.

⁷⁴ *Fla. Se. Connection, LLC*, 154 FERC ¶ 61,080, at P 139 (2016); *Bison Pipeline, LLC*, 131 FERC ¶ 61,013, at P 29 (2010); *Ruby Pipeline, L.L.C.*, 128 FERC ¶ 61,224, at P 57 (2009); *MarkWest Pioneer, L.L.C.*, 125 FERC ¶ 61,165, at P 34 (2008).

⁷⁵ 18 C.F.R. § 154.313 (2022).

In addition, Rio Bravo is advised to include as part of the eFiling description a reference to Docket Nos. CP16-455-000 and CP20-481-000 and the cost and revenue study.⁷⁶ After reviewing the data, the Commission will determine whether to exercise its authority under NGA section 5 to investigate whether the rates remain just and reasonable. In the alternative, in lieu of that filing, Rio Bravo may make an NGA general section 4 rate filing to propose alternative rates to be effective no later than three years after the in-service date for its proposed facilities.

3. Environmental Analysis

41. On July 27, 2020, the Commission issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Rio Bravo Pipeline Project Amendment, and Request for Comments on Environmental Issues* (NOI). The NOI was published in the *Federal Register*⁷⁷ and mailed to interested parties, including federal, state, and local officials; agency representatives; environmental and public interest groups; Native American tribes; local libraries and newspapers; and affected property owners. We received approximately 960 comment letters in response to the Notice of Application and during the scoping period from interested individuals and affected landowners; the City of South Padre Island; Texas Parks and Wildlife Department; U.S. Fish and Wildlife Service (FWS); U.S. Environmental Protection Agency, Region 6; Texas State Historic Preservation Office; as well as non-governmental groups including Sierra Club, Vecinos para el Bienestar de la Comunidad Costera, Shrimpers and Fishermen of the RGV, Carrizo Comecrudo Tribe of Texas, Save RGV (formerly Save RGV from LNG), Frontera Audubon Society, and Defenders of Wildlife.

42. The primary issues raised during scoping included safety-related impacts from a larger diameter pipeline and increased pipeline pressure; wetland and wildlife impacts along the pipeline route; impact on Tribal lands; socioeconomic impacts; air quality impacts, greenhouse gas emissions and climate change; and systems alternatives. Several commenters asked the Commission to hold public meetings to engage the public on the scope of the pipeline project and allow residents to express their concern and comment about the Rio Bravo Pipeline Project.⁷⁸ Public scoping meetings were not held given the limited scope of the Amendment Project. The interested members of the public and local non-governmental groups provided comments in response to the Notice of Application

⁷⁶ *Electr. Tariff Filings*, 130 FERC ¶ 61,047, at P 17 (2010).

⁷⁷ 85 Fed. Reg. 46,616 (Aug. 3, 2020).

⁷⁸ See, e.g., Rebekah Hinojosa August 27, 2020 Comment; Molly Smith August 27, 2020 Comment; Jim Chapman August 2, 2020 Comment.

and the NOI that largely related to the previously authorized projects.⁷⁹ The Environmental Assessment (EA) prepared for the Amendment Project and issued on December 21, 2020, correctly explained that the scope of Amendment Project is limited to the proposed modifications to the Rio Bravo Pipeline Project, the environmental impacts related to the already authorized projects are outside the scope of the environmental analysis for the proposed amendment.⁸⁰

43. The U.S. Army Corps of Engineers (Army Corps) participated as a cooperating agency in preparation of the EA because the project requires issuance of a dredge and fill permit from the Corps under section 404 of the Clean Water Act (CWA). The U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) also participated as a cooperating agency due to its pipeline safety and design requirement expertise. The analysis in the EA addresses geology, soils, water resources, wetlands, vegetation, fisheries, wildlife, threatened and endangered species, land use, recreation, visual resources, cultural resources, air quality, noise, safety, socioeconomics, cumulative impacts, and alternatives. All substantive comments raised during the scoping process and applicable to the Amendment Project were addressed in the EA.

44. The EA was issued for a 30-day comment period and placed into the public record on December 21, 2020. In response to the EA, we received nearly 400 comments

⁷⁹ See *supra* note 2.

⁸⁰ The environmental impacts of the already authorized projects were evaluated in the final EIS issued on April 26, 2019. The Commission will not consider arguments that relitigate the Authorization Order, including whether the Commission properly found the Rio Bravo Pipeline Project to be in the public convenience and necessity, except to the extent such arguments are within the scope of the remand proceeding. Concerns within the scope of the remand proceeding, including project impacts on environmental justice communities, are addressed below in Section III: *Vecinos* Remand Proceeding. Further, in addressing the Amendment Project, we will not consider arguments about whether the Commission properly analyzed the environmental impacts associated with the previously approved projects. Such excluded arguments raised by commenters include: wetland and upland vegetation loss; cumulative impacts of the projects; social cost, economic cost, environment, climate change impacts associated with LNG exports; impacts on ecotourism (fishing and birding) near the authorized Rio Grande LNG Terminal; visual resource, construction-related air quality, light, and noise impacts along the Rio Bravo Pipeline Project; environmental and health impacts on the shrimping and fishing industries at the end of the projects; environmental impacts of additional gas production facilitated by the pipeline and LNG facilities; and concerns related to SpaceX facility near the Rio Grande LNG Terminal. These are improper collateral attacks on the Authorization Order and need not be considered further.

primarily addressing issues related to our prior approval of the projects, which are outside the scope of the amendment proceeding. We also received comments on the EA from seven individuals,⁸¹ Sierra Club, and Healthy Gulf, raising environmental and procedural concerns associated with the Amendment Project. In addition, Rio Bravo filed clarifying comments on the EA,⁸² and responded to the public comments.⁸³

4. General NEPA Issues

a. NEPA Regulations Followed

45. Sierra Club contends that the EA fails to identify whether the environmental analysis was conducted according to the CEQ's 2020 amended NEPA regulations.⁸⁴ Because Rio Bravo filed its Amendment Project application before CEQ's regulations took effect on September 14, 2020, coupled with the fact that staff commenced its environmental review under NEPA before the effective date of CEQ's new regulations, staff followed the 1978 CEQ regulations⁸⁵ and the Commission's regulations implementing NEPA.⁸⁶

b. Insufficient Comment Period and Request for Public Comment Sessions

46. Maria Galasso, John Young, and other commenters requested that the comment period on the EA be extended, particularly in light of the comment period's concurrent timing with certain federal holidays and the presidential inauguration, as well as the COVID pandemic. Several commenters also assert that the Commission should have

⁸¹ Mary Branch filed three separate comments on January 20, 2021. Hereinafter, they are referred to as Mary Branch EA Comments 1, Mary Branch EA Comments 2, and Mary Branch EA Comments 3.

⁸² Rio Bravo January 21, 2021 EA Comments.

⁸³ Rio Bravo February 4, 2021 Response to EA Comments; Rio Bravo April 27, 2021 Response to Request for Supplemental EA/EIS (Rio Bravo April 27 Comments).

⁸⁴ Sierra Club January 21, 2021 EA Comments at 1 (Sierra Club EA Comments).

⁸⁵ Accordingly, when referencing CEQ's regulations, this order includes citations to CEQ's regulations as they existed before CEQ's new regulations took effect.

⁸⁶ 18 C.F.R. pt. 380 (2022).

held public comment sessions to further enable impacted communities and landowners to comment on the Amendment Project.⁸⁷

47. The EA was issued with a 30-day comment period. Nevertheless, as is our practice, we address all comments received on the EA, including late-filed comments, that raise issues within the scope of this proceeding.

c. Scope of Environmental Review

i. Request for Full or Supplemental EIS

48. Sierra Club and other commenters contend that the Commission is required to prepare an EIS, rather than an EA, for the Amendment Project.⁸⁸ Instead of assessing whether the incremental impact of Rio Bravo's proposed amendment will be significant, Sierra Club asserts that the scope of the Amendment Project's environmental review should address the impacts of the Rio Bravo Pipeline Project as a whole.⁸⁹ Sierra Club suggests that the Amendment Project constitutes significant new information and that the Commission must reexamine and supplement the final EIS.⁹⁰ Sierra Club states that it disagrees with the final EIS's conclusions regarding the Rio Bravo Pipeline Project's impact on wetlands and points to the suspension of the projects' "section 404/10 permit," a permit issued by the Army Corps pursuant to section 404 of the CWA and section 10 of the Rivers and Harbors Act (Corps permit).⁹¹ Sierra Club notes that a modified permit may require further mitigation of the wetland impacts associated with the Rio Bravo Pipeline Project.

49. The final EIS fully analyzed the environmental impacts of the Rio Grande LNG Terminal and the original Rio Bravo Pipeline Project. As noted above, the EA correctly explained that the scope of Amendment Project is limited to the proposed modifications

⁸⁷ See, e.g., Healthy Gulf January 21, 2021 Comments at 3, 5 (Healthy Gulf EA Comments); January 21, 2021 Comments submitted on behalf of 293 individuals. Many of the form letters submitted between January 21 and February 24, 2021 included similar requests.

⁸⁸ See Sierra Club EA Comments at 2.

⁸⁹ *Id.*

⁹⁰ *Id.*

⁹¹ See Sierra Club EA Comments at 2; see also Commission Staff November 5, 2020 Memorandum (appending Army Corps' August 6, 2020 Notice of Suspension of the Army Permit SWG-2015-00114).

to the Rio Bravo Pipeline Project.⁹² Because the Commission already considered the impacts of the project as a whole in issuing the Authorization Order, it was appropriate for staff to limit the analysis in the EA to only those aspects of the Rio Bravo Pipeline Project that would be changed by the Amendment Project.

50. As to wetland impacts, the EA explained that the Amendment Project would not permanently affect any additional wetlands, beyond the impacts described in the final EIS.⁹³ Nevertheless, as detailed in the EA, the proposed diameter increase of Pipeline 1 could result in additional temporary impacts of the wetlands crossed by the project due to the increased trench depth.⁹⁴ Rio Bravo and Rio Grande filed with the Army Corps a request to suspend the projects' section 404 permit, followed by a subsequent request for a permit modification to account for, among other things, the reduction of wetlands impacts within the Rio Grande LNG Terminal that would result from the elimination of Compressor Station 3.⁹⁵ As stated in both the Authorization Order and the EA, Rio Bravo will not be permitted to begin construction until it has obtained all necessary federal permits, including a valid section 404 permit.⁹⁶ In fact, on September 22, 2021, Rio Bravo received its updated Army Corps section 404 permit;⁹⁷ thus, the requirements under the CWA have been satisfied for the terminal, pipeline, and amendment.⁹⁸ Rio Bravo must comply with any additional mitigation or stipulations imposed by this or any future modified section 404 permit issued by the Army Corps. Accordingly, the EA concluded, and we agree, that any additional impacts on wetlands resulting from the Amendment Project would not be significant.⁹⁹

51. Section 102(2)(C) of NEPA requires federal agencies to prepare a detailed statement for "major federal actions significantly affecting the quality of the human

⁹² Amendment Project EA at 2-3.

⁹³ *Id.* at 14.

⁹⁴ *Id.*

⁹⁵ *Id.*

⁹⁶ *Id.* at 15.

⁹⁷ *See* Rio Grande September 27, 2021 Filing.

⁹⁸ *See* Rio Bravo June 1, 2022 Filing at Attachment 2-1.

⁹⁹ *Id.*

environment.”¹⁰⁰ Here, the EA analyzed the Amendment Project’s environmental effects and concluded that they would not be significant.¹⁰¹ Sierra Club has provided no substantial evidence to the contrary. Thus, preparation of an EIS is not required.¹⁰²

ii. Future Expansion of LNG Terminal

52. Sierra Club asserts that the Commission must address potential future expansions at the Rio Grande LNG Terminal, including the addition of a sixth liquefaction train.¹⁰³ To support this claim, Sierra Club states that Rio Grande has discussed this possibility in corporate presentations and filings to the U.S. Securities and Exchange Commission.¹⁰⁴ Sierra Club argues that the Commission cannot authorize the Amendment Project without first addressing how Rio Grande and Rio Bravo will supply feed gas for a hypothetical sixth liquefaction train.¹⁰⁵

53. As an initial matter, Sierra Club’s assertions regarding a hypothetical future expansion of the Rio Grande LNG Terminal are outside the scope of this proceeding, which is limited to the proposed design modifications to the authorized, but unconstructed, Rio Bravo Pipeline Project. In any event, Rio Grande has not proposed to produce more than the authorized 27 million metric tons of LNG per year, the amount authorized for export by the U.S. Department of Energy’s Office of Fossil Energy (DOE). The Commission has explained, and Rio Grande has acknowledged, that any expansion of export capacity at the Rio Grande LNG Terminal would require Rio Grande to seek and receive additional authorization from DOE, the Commission, and other applicable federal and state agencies.¹⁰⁶ Any incremental environmental impacts related to a future request for authorization to expand the LNG terminal’s export capacity would be

¹⁰⁰ 42 U.S.C. § 4332(2)(C).

¹⁰¹ Amendment Project EA at 50.

¹⁰² See 18 C.F.R. § 380.6 (2022) (describing actions that normally require preparation of an EIS).

¹⁰³ Sierra Club EA Comments at 3.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ Rehearing Order, 170 FERC ¶ 61,046 at P 27.

analyzed at that time.¹⁰⁷ Because no such request is proposed, nothing further is required here.¹⁰⁸

5. Aquatic Resources

54. Molly Smith takes issue with the EA's conclusion that the Amendment Project's proposal to increase the diameter of Pipeline 1, requiring an eight-foot-deep ditch rather than a seven-foot ditch, would not change the impacts on soil, groundwater, and wetlands.¹⁰⁹ In particular, Ms. Smith asserts that the EA erred in concluding that aquatic resources would not be impacted by the proposed deeper trench.

55. As indicated in the EA, the final EIS described the existing aquatic resources, as well as the impacts and mitigation of the Rio Bravo pipeline system.¹¹⁰ The Amendment Project does not impact any waterbodies not previously considered in final EIS.¹¹¹ Therefore, the EA concluded, and we agree, that Rio Bravo's proposed amendment would not impact aquatic resources.¹¹² To the extent there are any additional impacts to aquatic resources as a result of the one-foot deeper trench, they are expected to be minor and would be mitigated by Rio Bravo's implementation of the measures in its 404 permit and 401 water quality certification. Moreover, the mitigation measures for resource impacts, including soils and groundwater, identified in the final EIS¹¹³ and subsequently adopted as required conditions of the Commission's authorization for these projects, would apply to the Amendment Project. We find that these mitigation measures will

¹⁰⁷ *Id.* (collecting examples where additional environmental analysis preceded Commission action authorizing increased LNG production capacity).

¹⁰⁸ NEPA "does not require agencies to commence NEPA reviews of projects not actually proposed." *Del. Riverkeeper Network v. FERC*, 753 F.3d 1304, 1318 (D.C. Cir. 2014) (citation omitted); *see also Weinberger v. Catholic Action of Haw.*, 454 U.S. 139, 146 (1981) ("an EIS need not be prepared simply because a project is *contemplated*, but only when the project is *proposed*") (emphasis in the original).

¹⁰⁹ Molly Smith January 20, 2021 Comments.

¹¹⁰ Amendment Project EA at 15; *see also* Final EIS at § 4.6.2.

¹¹¹ Amendment Project EA at 15.

¹¹² *Id.*

¹¹³ *Id.* Mitigation measures include crossing all waterbodies with perceptible flow between November 1 and January 31, unless further approval by Texas Parks and Wildlife Department. Final EIS at 4-118.

ensure that the aquatic, soils, and groundwater resources impacted by the Rio Bravo Pipeline Project will be adequately protected.

6. Threatened and Endangered Species

56. Various commenters, pointing to the FWS's November 9, 2020 listing of the eastern black rail as federally threatened, requested that the Amendment Project's impacts on this species be disclosed and suggested that further consultation with the FWS was needed.¹¹⁴

57. The final EIS for the projects discussed the eastern black rail, which at the time was proposed for listing as threatened, and provided a detailed analysis of the project's effects on this species.¹¹⁵ By letter filed January 26, 2021, the FWS concurred with Commission staff's determination that the projects *may affect but are not likely to adversely affect* the eastern black rail.¹¹⁶ Given the Amendment Project would not result in additional ground-disturbing activities, vegetation removal, or otherwise impact listed species or their habitats beyond what was described for the Rio Bravo Pipeline Project, Commission staff determined there would be *no effect* on the eastern black rail as a result of the implementation of the Amendment Project.¹¹⁷ Moreover, by letter filed August 24, 2020, the FWS determined that no amendment to the October 1, 2019 Biological Opinion for the Rio Bravo Pipeline Project was required based on the proposed Amendment Project.¹¹⁸ This completes our consultation requirements for federally listed species under the Endangered Species Act.

7. Pipeline Safety

58. Molly Smith comments that the EA did not adequately address the pipeline's proximity to human activity, stating that the pipeline will pass under the heavily trafficked Highway 48 in the vicinity of Zapata Memorial Boat Ramp, a popular fishing

¹¹⁴ See, e.g., John Young January 21, 2021 Comments at 6; Mary Branch EA Comments 2; Save RGV January 20, 2021 Comments at 2.

¹¹⁵ See Final EIS at 4-143 to 4-145.

¹¹⁶ FWS, Comments, Docket Nos. CP16-454-000 and CP16-455-000 (filed Jan. 26, 2021).

¹¹⁷ See Amendment Project EA at 16-17.

¹¹⁸ FWS August 24, 2020 Comments at 2.

area.¹¹⁹ Ms. Smith also states that the EA failed to consider the increased corrosive nature of saltwater compared to freshwater.

59. The EA appropriately examined the safety implications of the Amendment Project and thoroughly described the federal regulatory program that oversees pipeline safety and design.¹²⁰ As noted above, PHMSA participated as a cooperating agency in the preparation of the EA for the Amendment Project due to the agency's pipeline safety and design expertise. PHMSA administers the national regulatory program to ensure the safe transportation of natural gas and other hazardous materials by pipeline,¹²¹ including pipelines that traverse coastal, salt marsh, and other more caustic regions and those within the vicinity of populated areas. As further described in the EA, PHMSA defines area classifications based on population density in the vicinity of the pipeline; class locations that represent more populated areas require higher safety factors in pipeline design, testing, and operation.¹²² Rio Bravo completed additional analysis for the Amendment Project, which confirmed that the entire pipeline system would be located within Class 1 locations,¹²³ the least populated area classification. Pipelines 1 and 2 would be designed for an MAOP of 1,825 psig and tested to a minimum of 2,293 psig for Class 1 locations.¹²⁴ If the Class 1 designation changes, Rio Bravo would test the pipelines to ensure they conform to the higher pressure standards required for any Class 2 and 3 locations along the route.¹²⁵ Thus, we find that the EA adequately addressed these concerns.

¹¹⁹ Molly Smith January 20, 2021 Comments.

¹²⁰ See Amendment Project EA at 31-41.

¹²¹ *Id.* at 31.

¹²² *Id.* at 33-34.

¹²³ PHMSA defines Class 1 as a location with 10 or fewer building intended for human occupancy. *Id.* at 33.

¹²⁴ *Id.* at 34.

¹²⁵ *Id.* In more populated areas, block valve location, pipe wall thickness and pipeline design pressures, hydrostatic test pressures, MAOP, inspection and testing of welds, and frequency of pipeline patrols and leak surveys must conform to higher standards. *Id.*

8. GHG Emissions

60. The EA analyzed potential GHG emissions attributable due to the Amendment Project. With respect to GHG emissions from the construction associated with the Amendment Project, the EA concluded that the increase in the diameter of pipeline 1 would not result in additional construction emissions beyond the emission detailed in final EIS.¹²⁶ Construction emissions for the modified Compressor Station 1 are estimated to remain unchanged from the estimates presented in the final EIS, while construction emissions associated with Compressor Stations 2 and 3 and Booster Stations 1 and 2 would be avoided as the Amendment Project would eliminate these facilities.¹²⁷

61. With respect to the operational emissions associated with pipelines,¹²⁸ the EA noted that although the Amendment Project would slightly increase the length of the pipelines,¹²⁹ the emissions estimate from pipeline operation would remain the same as detailed in the final EIS.¹³⁰ The originally estimated operational GHG emissions attributable to Compressor Stations 2 and 3 (761,764 and 552 tpy of carbon dioxide equivalents [CO₂e], respectively)¹³¹ would be avoided because those stations would not be built. The GHG emissions associated with operation of the modified Compressor Station 1¹³² are marginally less than the GHG emissions reported for the station as

¹²⁶ Amendment Project EA at 25.

¹²⁷ *Id.*

¹²⁸ Fugitive emissions in the form of minor leaks from flanges, valves, and connectors could occur along the length of the pipeline route during operation.

¹²⁹ The 0.2-mile-extension of each pipeline from 135.5 miles to 135.7 miles represents a 0.15% increase in length. This proportional increase is well within the margin of error for the construction emissions presented in the EA. Additionally, Compressor Stations 2 and 3, Booster Stations 1 and 2, and associated meter stations, authorized in the Authorization Order, are eliminated as part of the Amendment Project; therefore, emissions estimated in the final EIS to result from construction of these facilities will no longer occur.

¹³⁰ Amendment Project EA at 26.

¹³¹ See Final EIS at 4-275, tbl. 4.11.1-16 (table of emissions from Compressor Station 2) and 4-263, tbl. 4.11.1-7 (table of emissions from Compressor Station 3).

¹³² Compressor Station 1 as originally authorized would have contained six 30,000-hp natural gas-driven turbines, two natural gas-fired backup generators, and other ancillary facilities. The modified Compressor Station 1 proposed in the Amendment Project would consist of four 43,000-hp natural gas-driven turbines,

originally authorized.¹³³ Overall, there would be a net reduction in the GHG emissions associated with the Rio Bravo Pipeline Project as a result of the Amendment Project, which reduction is attributable to the elimination of Compressor Stations 2 and 3, where the emissions associated with the construction and operation of the facilities being modified by the Amendment Project, i.e., Pipeline 1 and Compressor Station 1, remain the same.¹³⁴

9. Cumulative Impacts

62. Healthy Gulf takes issue with the scope of the Amendment Project EA's cumulative impacts analysis, stating that the EA should address the impacts from both the Rio Bravo Pipeline Project and the Rio Grande LNG Terminal.¹³⁵ Specifically, Healthy Gulf asserts that the cumulative impacts analysis for the Amendment Project did not include emissions from modified Compressor Station 1.¹³⁶ Healthy Gulf also suggests that the Commission must complete a programmatic EIS "to take into account the cumulative effects of all fossil gas, fossil fuel and petrochemical facilities in operation and in planning, that will affect the communities and the environment" of the region in which the Amendment Project is proposed.¹³⁷

two 55,000-hp electric motor-driven compressor units, one natural gas-driven fuel heater, and two natural gas-fired backup generators, and other ancillary facilities. The station as modified would have approximately the same amount of horsepower from natural-gas driven compressor units. Electric motor-driven compressors would not have any associated emissions and, thus, are not a source of GHG emissions.

¹³³ Amendment Project EA at 27, tbl. 5 (reporting 760,402 tons per year of CO₂e) as compared to Final EIS at 4-275, tbl. 4.11.1-16 (reporting 761,764 tons per year of CO₂e).

¹³⁴ The EA at page 46 states that: "construction and operation of the Project Amendment [facilities] would increase the atmospheric concentration of GHGs." That statement addressed the potential climate impacts from the GHG emissions associated with the construction and operation of the relevant pipeline segments and Compressor Station 1 on a stand-alone basis. It did not consider the net effect on GHG emissions of the Amendment Project as compared to the authorized project (i.e., the fact that the Amendment Project eliminated emitting facilities).

¹³⁵ See Healthy Gulf EA Comments at 1-3.

¹³⁶ *Id.* at 2.

¹³⁷ *Id.* at 1.

63. The scope of the cumulative impacts analysis is focused on the air quality impacts of the Amendment Project when added to other past, present, and reasonably foreseeable future actions,¹³⁸ and the EA's cumulative impacts analysis did consider the proposed modifications to Compressor Station 1. The EA assessed the air emissions associated with both construction and operation of modified Compressor Station 1 in combination with any past, present, and reasonably foreseeable future projects in the geographic scope of emissions for modified Compressor Station 1.¹³⁹ The EA concluded that only one known project—the City of Alice's trench burner project—could be constructed concurrently with modified Compressor Station 1, but given the intermittent and short-term nature of construction, that project would have a minor cumulative air emissions impact when considered with proposed modified Compressor Station 1.¹⁴⁰ As to operational emissions, the EA determined that although concurrent operation of modified Compressor Station 1 and the other projects identified in the geographic scope could result in a cumulative increase in combustion and fugitive emissions, concurrent operations are not expected to result in an exceedance of the National Ambient Air Quality Standards (NAAQS) for those emissions.¹⁴¹

64. Contrary to Healthy Gulf's assertion, the Commission is not required to complete a programmatic EIS “to take into account the cumulative effects of all fossil gas, fossil fuel and petrochemical facilities in operation and in planning, that will affect the communities and the environment” in the vicinity of the Amendment Project.¹⁴² As the Supreme Court held in *Kleppe v. Sierra Club*,¹⁴³ a programmatic EIS is not required to evaluate the regional development of a resource by private industry if the development is

¹³⁸ See *id.*; Amendment Project EA at 42 (explaining that cumulative impacts related to resource areas other than air quality were not evaluated due to there being no additional impacts—or, in many cases, fewer impacts—associated with the Amendment Project when compared to the impacts analyzed in the final EIS).

¹³⁹ See Amendment Project EA at 42-44. The EA applied a resource-specific geographic boundary for air quality of 0.5 mile of the proposed modified Compressor Station 1 for construction-related cumulative impacts and within 31 miles (or 50 kilometers) of the modified station for operation-related cumulative impacts. *Id.* at 42.

¹⁴⁰ *Id.* at 44.

¹⁴¹ *Id.*

¹⁴² Healthy Gulf EA Comments at 1.

¹⁴³ 427 U.S. 390 (1976).

not part of, or responsive to, a federal plan or program in that region.¹⁴⁴ We have explained that there is no Commission plan, policy, or program for the development of natural gas infrastructure.¹⁴⁵ Rather, the Commission acts on individual applications filed by entities proposing to construct interstate natural gas pipelines.¹⁴⁶ While the Commission's practice is to consider each natural gas infrastructure project application on its own merits, we may, however, choose to prepare a multi-project environmental document regarding projects that are closely related in time or geography, where that is the most efficient way to review project proposals,¹⁴⁷ and the Commission's NEPA documents do consider the cumulative impacts of other jurisdictional and non-jurisdictional projects in the same geographic and temporal scope as the proposal under consideration. The final EIS for the projects included a comprehensive cumulative impacts assessment of all past, present, and reasonably foreseeable actions in the area of the projects.¹⁴⁸

65. In the Amendment Project EA, Commission staff determined that Rio Bravo's proposal would not result in additional resource impacts beyond what was described in the final EIS for the underlying authorization, with the exception of air quality impacts due to modified Compressor Station 1.¹⁴⁹ Therefore, the Amendment Project EA's cumulative impacts analysis was appropriately limited in scope to cumulative impacts on local and/or regional air quality.¹⁵⁰ Additionally, we find that we do not need to do a programmatic EIS.

¹⁴⁴ *Id.* at 401-02.

¹⁴⁵ *See, e.g., Tex. E. Transmission, LP*, 149 FERC ¶ 61,259, at PP 38-47 (2014); *Dominion Transmission, Inc.*, 152 FERC ¶ 61,138, at P 30 (2015).

¹⁴⁶ *E.g., Atl. Coast Pipeline, LLC*, 161 FERC ¶ 61,042, at P 281 (2017).

¹⁴⁷ *See* 40 C.F.R. § 1508.25 (2022); *see also, e.g.,* EA for the Monroe to Cornwell Project and the Utica Access Project, Docket Nos. CP15-7-000 & CP15-87-000 (issued Aug. 19, 2015); Final Multi-Project Environmental Impact Statement for Hydropower Licenses: Susquehanna River Hydroelectric Projects, Project Nos. 1888-030, 2355-018, and 405-106 (issued Mar. 11, 2015).

¹⁴⁸ Final EIS at 4-392 to 4-495.

¹⁴⁹ *See* Amendment Project EA at 41.

¹⁵⁰ *See id.* at 41-44.

10. Alternatives

66. In its comments on the EA, Sierra Club asserts that the Commission must consider as a viable alternative the possibility that some of the natural gas needed at the Rio Grande LNG Terminal could be supplied by the Valley Crossing Pipeline, an existing intrastate pipeline owned by Valley Crossing Pipeline, LLC, an Enbridge affiliate.¹⁵¹ Sierra Club also faults the EA for not discussing a higher capacity single pipeline alternative in combination with available capacity on the Valley Crossing Pipeline.¹⁵² Specifically, Sierra Club claims that some combination of increasing the throughput of a single 48-inch-diameter pipeline (beyond the Amendment Project's proposed 2.6 Bcf/d capacity for Pipeline 1) and supplemental gas deliveries from the Valley Crossing Pipeline could provide the necessary feed gas to the Rio Grande LNG Terminal.¹⁵³

67. In addition, on March 25, 2021, Sierra Club filed a request for supplemental environmental analysis exploring whether and how the cancellation of the Annova LNG Brownsville Project (Annova Project) impacts the feasibility of a single-pipeline alternative to the Rio Bravo Pipeline Project.¹⁵⁴ The cancellation of the Annova Project, Sierra Club argues, frees up capacity on the Valley Crossing Pipeline that could be used to transport gas for use at the Rio Grande LNG Terminal.¹⁵⁵ Sierra Club concedes that

¹⁵¹ Sierra Club EA Comments at 4-5.

¹⁵² *Id.* at 6.

¹⁵³ *See id.* To the extent Sierra Club suggests that the Commission has not demonstrated a need for the Rio Bravo Pipeline Project's original proposal—i.e., the delivery of 4.5 Bcf/d of natural gas to the Rio Grande LNG Terminal—this argument is an improper collateral attack on the Authorization Order and need not be considered further. *See* Sierra Club EA Comments at 4. The Commission previously confirmed that the Rio Bravo Pipeline Project did not “represent an overbuild,” evaluated its adequacy, reliability, safety, and environmental impacts, and considered alternatives that would achieve the original proposal's purpose of delivering 4.5 Bcf/d of natural gas to the Rio Grande LNG Terminal. *See* Rehearing Order, 170 FERC ¶ 61,046 at PP 25-26.

¹⁵⁴ Sierra Club March 25, 2021 Request for Supplemental EA/EIS at 1 (citing Annova LNG Common Infrastructure, LLC (Annova), Request to Vacate Section 3 Authorization, Docket No. CP16-480-000 (filed March 22, 2021)) (Sierra Club March 25 Comments). On April 15, 2021, the Commission issued an order vacating the NGA section 3 authorization granted to Annova on November 22, 2019, in Docket No. CP16-480-000. *Annova LNG Common Infrastructure, LLC*, 175 FERC ¶ 61,030 (2021).

¹⁵⁵ The amount of additional capacity is disputed. Sierra Club argues that the Annova Project cancellation frees up 1.2 Bcf/d of capacity on the Valley Crossing

modifications to the Valley Crossing Pipeline, such as installing additional compression, would have been necessary to provide Annova with the firm transportation service it had contracted for, but argues that such modifications would result in significantly less impact than construction of a second Rio Bravo pipeline.¹⁵⁶ Sierra Club again claims that the remaining quantity of gas needed to meet the Rio Grande LNG Terminal's needs could be delivered by a single Rio Bravo pipeline, rather than a dual pipeline system.¹⁵⁷ Essentially, Sierra Club suggests that the Annova Project's cancellation and the possibility of available capacity on the Valley Crossing Pipeline constitute "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action" that require supplemental analysis under NEPA.¹⁵⁸

68. For a number of reasons, Rio Bravo disputes Sierra Club's suggestion that supplemental NEPA analysis is required, and asserts that, even if "significant new circumstances or information" were present, the potential future expansion of the Valley Crossing Pipeline is not a reasonable alternative that would merit further analysis.¹⁵⁹ Specifically, Rio Bravo argues that: (1) its proposed action remains unchanged and Sierra Club has failed to identify any new impacts that have not already been addressed;¹⁶⁰ (2) Sierra Club's suggested alternative is not reasonable as it fails to meet the Amendment Project's purpose of providing Rio Bravo with additional operational flexibility in meeting the requirements of the project shipper;¹⁶¹ and (3) the alternative is

Pipeline, pointing to a statement in the Commission's authorization order that states that the "Annova LNG Brownsville Project will receive . . . up to 1.2 [Bcf/d] of natural gas from the existing intrastate system of Valley Crossing Pipeline, LLC." Sierra Club March 25 Comments at 1-2 (citing *Annova Common Infrastructure, LLC*, 169 FERC ¶ 61,132, at P 9 (2019)). Rio Bravo challenges Sierra Club's estimate of Annova's contracted volume on the Valley Crossing Pipeline, asserting instead that the now cancelled project was designed to receive 0.9 Bcf/d of feed gas from the Valley Crossing Pipeline. See Rio Bravo April 27 Comments at 5.

¹⁵⁶ Sierra Club March 25 Comments at 1-2.

¹⁵⁷ See *id.* at 2.

¹⁵⁸ *Id.* at 2 (citing 40 C.F.R. § 1502.9(c)(1)(ii) (2019); *id.* § 1502.9(d)(1)(ii) (2020)).

¹⁵⁹ See generally Rio Bravo April 27 Comments.

¹⁶⁰ See *id.* at 2-4.

¹⁶¹ See *id.* at 4-6.

further not reasonable because it is infeasible,¹⁶² impractical,¹⁶³ and relies on the speculative actions of third parties.¹⁶⁴

69. John Young also requested that the Commission provide an alternatives analysis that compares several pipeline route alternatives in terms of public health and safety and impacts;¹⁶⁵ and Mary Branch requested that the Commission consider alternative pathways to avoid 95.2% environmental justice communities cited in Rio Bravo's documentation.¹⁶⁶

70. We find that the EA properly considered alternatives to the Amendment Project. The applicant's statement of purpose and need informs the choice of alternatives.¹⁶⁷ As stated in the EA, the purpose of the Amendment Project is "to provide flexibility and efficiency in satisfying the requirements of the natural gas shipper supplying natural gas to the Rio Grande LNG Terminal."¹⁶⁸ The EA examined three alternatives to the Amendment Project: (1) a no-action alternative; (2) a system alternative using the Valley

¹⁶² See *id.* at 7-9 (describing engineering and design considerations that would be impaired by eliminating the second Rio Bravo pipeline in favor of capacity on the Valley Crossing Pipeline).

¹⁶³ See *id.* at 9-10 (describing timing and cost considerations, such as the need for Valley Crossing Pipeline to design and build a second pipeline and the need for Rio Bravo to redesign and add compression to its own pipeline system to accommodate a significant increase in capacity on a single pipeline, that would "render the alternative logistically impractical").

¹⁶⁴ See *id.* at 11-13.

¹⁶⁵ John Young October 20, 2022 Comments at 5.

¹⁶⁶ Mary Branch October 21, 2022 Comments at 1.

¹⁶⁷ CEQ advises that "a reasonable range of alternatives depends on the nature of the proposal and the facts in each case." CEQ, *Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations*, 46 Fed. Reg. 18,026, 18,027 (1981). An agency need only consider alternatives that will bring about the ends of the proposed action, and the evaluation is "shaped by the application at issue and by the function that the agency plays in the decisional process." *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 195, 199 (D.C. Cir. 1991). Courts have upheld agencies' use of applicants' project purpose and need as the basis for evaluating alternatives. See, e.g., *City of Grapevine, Tex. v. Dept. of Transp.*, 17 F.3d 1502, 1506 (D.C. Cir. 1994).

¹⁶⁸ Amendment Project EA at 2.

Crossing Pipeline; and (3) a single 60-inch-diameter pipeline.¹⁶⁹ The EA stated that under the no-action alternative, the environmental impacts associated with the Rio Bravo Pipeline Project would still occur because at that time, Rio Bravo had received authorization for the project as originally designed, pursuant to the terms and conditions of the Authorization Order.¹⁷⁰ Because the no-action alternative would not meet the Amendment Project's objectives and would result in greater environmental impacts, Commission staff did not recommend it.¹⁷¹ The EA also concluded that a single 60-inch-diameter pipeline, an alternative previously considered in the final EIS, remained infeasible due to safety and constructability issues, as well as operational inferiorities.¹⁷²

71. John Young's and Mary Branch's request to consider alternative routes in terms of public health and safety impacts and avoidance of environmental justice communities, appears directed at the entire length of the authorized pipelines. We find their comments to be outside the scope of this proceeding because, with respect to the route of the dual pipeline, the Amendment Project only involves 0.2-mile extension of the pipelines to interconnect the pipelines with the LNG Terminal,¹⁷³ all within the already approved footprint of the LNG Terminal.

72. With respect to the configuration of the already approved dual pipeline, the Amendment Project is limited in scope as it only involves a 6-inch diameter increase for Pipeline 1, and a 0.2-mile extension and operating pressure change for Pipeline 1 and Pipeline 2; however, commenters propose the Valley Crossing Pipeline as a system alternative. As discussed in the EA, the Valley Crossing Pipeline is an intrastate pipeline that is fully subscribed by end users in Mexico.¹⁷⁴ The pipeline system would have had

¹⁶⁹ *Id.* at 48-49.

¹⁷⁰ *Id.* at 48.

¹⁷¹ *Id.*

¹⁷² *Id.* at 49 (dismissing this alternative in part because a single pipeline, unlike Rio Bravo's dual pipeline system, could require shutting down or limiting gas delivery during maintenance and inspection activities).

¹⁷³ The pipeline originally would have interconnected and ended at the Compressor Station 3, which was sited entirely within the footprint of the approved LNG terminal. *See id.* at 9.

¹⁷⁴ *Id.* at 49.

to been expanded to accommodate service to the Annova Project.¹⁷⁵ There is no evidence that, given the cancellation of the Annova Project, there has been any expansion of that system resulting in available firm capacity. Thus, as explained in the EA, any transportation service that could be obtained on the Valley Crossing Pipeline to supply the Rio Grande LNG Terminal would be on an interruptible basis only.¹⁷⁶ Additionally, there is no evidence that Valley Crossing Pipeline, LLC, an entity not subject to our jurisdiction, is either willing or able to modify its facilities in a way that would create enough additional firm capacity to eliminate the need for Rio Bravo's Pipeline 2. Therefore, we agree with the EA's conclusion that the Valley Crossing Pipeline is not a feasible alternative to the Amendment Project.¹⁷⁷

73. As we have previously explained, the Commission does not independently design systems for pipeline companies; rather, the Commission ensures that any proposed project it approves is or will be required by the public convenience and necessity.¹⁷⁸ Sierra Club has not shown that the cancellation of an unrelated LNG terminal constitutes "substantial changes in the proposed action that are relevant to environmental concerns" or "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts" that merit supplemental analysis under NEPA.¹⁷⁹

11. Environmental Justice

74. With respect to the proposed Amendment Project, the EA explains that the project involves elimination and modifications to the facilities authorized under the Rio Bravo Pipeline Project.¹⁸⁰ Sierra Club and Mr. John Young requested that the Commission consider the impacts of the proposed modifications at Compressor Station 1 on minority

¹⁷⁵ See Rio Bravo April 27 Comments at 11-12 (explaining that, prior to project cancellation, Annova had a contract with the Valley Crossing Pipeline "that would have been made available only through future expansions of that pipeline.").

¹⁷⁶ Amendment Project EA at 49.

¹⁷⁷ *Id.*

¹⁷⁸ Rehearing Order, 170 FERC 61,046 at P 25.

¹⁷⁹ 40 C.F.R. § 1502.9(c)(1).

¹⁸⁰ Amendment Project EA at 19.

and low-income populations. Impacts on environmental justice communities within a 50-kilometer radius around Compressor Station 1 are discussed below.¹⁸¹

75. Staff finds that there would be no substantial change to wetlands, surface water, tourism, recreational and subsistence fishing, visual, socioeconomics, traffic, air quality, or noise impacts on environmental justice communities associated with the project modifications from the Amendment Project, as compared to the original previously authorized Rio Bravo Pipeline Project. Additionally, environmental justice concerns are not present for Amendment Project facilities for other resource areas such as geology, soils, groundwater, fisheries, wildlife, or cultural impacts due to the de minimis impact the project would have on these resources.

76. Commission staff provides an updated analysis of impacts on environmental justice communities in conjunction with its supplemental environmental review of the Rio Bravo Pipeline Project on remand from the court. As detailed below, for the Rio Bravo Pipeline Project, as amended, Commission staff identified 106 environmental justice community block groups impacted by the pipeline project facilities,¹⁸² and concluded that impacts from construction and operation of Meter Station HS4 and Meter Station at the LNG Terminal, Contractor Yards 1, 2, and 3, and a majority of the 135-mile-long pipelines, would be disproportionately high and adverse, as impacts would be predominately borne by environmental justice communities, but that impacts from these facilities would be less than significant.¹⁸³ Staff concludes that impacts from construction and operation of Compressor Station 1 would not be disproportionately high and adverse as impacts would not be predominately borne by environmental justice communities; additionally, impacts from Compressor Station 1 would be less than significant.¹⁸⁴ We agree.

¹⁸¹ See *infra* P 165.

¹⁸² See *infra* PP 165-168, 179. Fourteen environmental justice community block groups will be crossed by the pipeline; 87 environmental justice communities are within a 50-kilometer radius of Compressor Station 1; one environmental justice community block group is within a one-mile radius of a new meter station; one meter station is located within an environmental justice community; and each of the three contractor yards are located within an environmental justice community.

¹⁸³ See *infra* P 206.

¹⁸⁴ See *infra* P 173. Operations emissions associated with Compressor Station 1 would not cause an exceedance of the NAAQS. In addition, the radius of impact for Compressor Station 1 is approximately 0.6 mile (1 kilometer) for this facility. Outside this radius, Commission staff determined that the project would not contribute to adverse ambient air quality impacts. Therefore, based on Commission staff's updated

12. Rio Bravo's EA Comments

77. Rio Bravo submitted comments on the EA to clarify certain permitting and consultation details.¹⁸⁵ First, as noted above, Rio Bravo has received its modified CWA section 404 permit from the Army Corps¹⁸⁶ and its section 401 water quality certification from the Texas Railroad Commission.¹⁸⁷

78. Second, Rio Bravo notes that the EA's discussion of consultation under section 106 of the National Historic Preservation Act is accurate,¹⁸⁸ but clarifies that an entry in Table 3 should be updated to reflect that the National Park Service's section 106 consultation is complete.¹⁸⁹ These clarifications are noted, but do not change the EA conclusion or warrant further clarification from the Commission.

13. Environmental Conclusion

79. Regarding the Amendment Project, based on the analysis in the EA, as supplemented herein, we conclude that if constructed and operated in accordance with Rio Bravo's application and supplements, and in compliance with the environmental conditions in Appendix A to this order, our approval of the Amendment Project proposal would not constitute a major federal action significantly affecting the quality of the human environment.

environmental justice analysis, we conclude that operation emissions associated with Compressor Station 1 would not result in a significant impact on air quality in environmental justice communities.

¹⁸⁵ Rio Bravo January 21, 2020 Comments (Rio Bravo EA Comments).

¹⁸⁶ See Rio Bravo October 7, 2021 Filing.

¹⁸⁷ Rio Bravo stated that the Texas Railroad Commission confirmed on August 31, 2021, that the section 401 water quality certification issued on February 14, 2020, continued to be valid in light of the section 404 permit modifications. Rio Bravo May 20, 2022 Response to Commission staff's May 2, 2022 Environmental Information Request at Response 1.

¹⁸⁸ Amendment Project EA at 18.

¹⁸⁹ Compare Rio Bravo EA Comments at 2 with Amendment Project EA at 11 (tbl. 3) (describing section 106 consultation with National Park Service as ongoing).

C. Pipeline Amendment Project Conclusion

80. Based on the discussion above, we find under NGA section 7 that the public convenience and necessity requires approval of Rio Bravo's request that the Commission amend the NGA section 7 certificate authorization issued by the Authorization Order to authorize it to construct and operate the project with the proposed Amendment Project facility modifications. Accordingly, Rio Bravo's NGA section 7 certificate authorization to construct and operate those facilities is amended as requested, subject to the conditions in this order and in the Authorization Order.

III. Vecinos Remand Proceeding

81. As discussed above, the D.C. Circuit remanded the Commission's authorization for the Rio Grande LNG Terminal and Rio Bravo Pipeline Project and directed the Commission to address deficiencies in its NEPA analyses of the projects' impacts on climate change and environmental justice communities. With respect to those two issues, we revise our environmental analysis below.

A. Remand Proceeding Procedural Issues

1. Commission's September 30, 2022 Notice and Comment Period

82. On February 3, August 16, and August 31, 2022, and on January 6 and February 10, 2023, Commission staff issued environmental information requests to Rio Grande regarding environmental justice communities, visual impacts, air quality modeling, and emergency planning, in order to address deficiencies noted in the D.C. Circuit's decision. Rio Grande responded to Commission staff's information requests on March 3, August 22, September 15, and November 2, 2022, and on January 20, January 27, February 13, and February 14, 2023. Similarly on May 2, May 10, and December 9, 2022, and on January 9 and February 15, 2023, Commission staff issued information requests to Rio Bravo, to which Rio Bravo provided responses on June 1 and December 29, 2022, and January 1 and February 21, 2023.

83. On September 30, 2022, the Commission issued a notice seeking public comments on Rio Grande and Rio Bravo's responses. The notice stipulated that initial comments were due no later than October 21, 2022, and reply comments no later than November 4, 2022. Numerous comments were filed during the initial comment period,¹⁹⁰ including:

¹⁹⁰ See, e.g., John Young October 24, 2022 Comments; Nancy McNab et al. October 21, 2022 Comments; Dee Ruiz et al. October 21, 2022 Comments; Damian Blattler et al. October 21, 2022 Comments; Amelia Odegard et al. October 21, 2022 Comments; Theresa Flanagan et al. October 21, 2022 Comments; Juan B. Mancias et al.

(1) statements in general opposition to the projects; (2) assertions of deficiencies in Rio Grande and Rio Bravo's responses, including the revised air modeling for the Rio Grande LNG Terminal; (3) concerns with project impacts on environmental justice communities, including the air quality impacts of volatile organic compounds (VOC) and particulate matter on those communities, inadequate outreach to environmental justice communities, and insufficient information provided on the impacts of offsite parking locations and Rio Grande's Emergency Response Plan; (4) concerns regarding climate change and GHGs; and (5) requests for public meetings in a town hall format with Spanish language translation and for all permit documents to be translated into the Spanish language. These comments are addressed below.

84. As noted, commenters requested that the Commission hold public meetings in a town hall format.¹⁹¹ Commenters also requested that the Commission provide greater access to Spanish-speaking communities by providing Spanish language translation at any public meetings and provide a translated version of the Commission's requests for information and the comments and responses to the information requests from Rio Grande and Rio Bravo.¹⁹²

85. In this proceeding, and consistent with how the Commission has processed other remand orders,¹⁹³ we reviewed the record to determine whether the deficiencies identified by the court could be redressed and what, if any, additional information would be helpful. This order addresses the particular issues identified by the court on remand.¹⁹⁴ Although the public had opportunities for involvement during the prefiling and environmental review processes associated with the Commission's original consideration of the

October 21, 2022 Comments; Center for LNG October 21, 2022 Comments; and Sierra Club et al. October 19, 2022 Comments.

¹⁹¹ See Sierra Club et al. October 19, 2022 Comments; *see also* Nancy McNab et al. October 21, 2022 Comments.

¹⁹² See Sierra Club et al. October 19, 2022 Comments.

¹⁹³ See *Spire STL Pipeline LLC*, 181 FERC ¶ 61,232, at PP 18-20 (2022) (determining the record was sufficient to allow the Commission to address the issues on remand without additional requested briefing); *on reh'g Spire STL Pipeline LLC*, 183 FERC ¶ 61,048 (2023); *NEXUS Gas Transmission, LLC*, 172 FERC ¶ 61,199 (2020) (reviewing the record and the court's instructions on remand to issue a certificate of convenience and public necessity without soliciting additional comments).

¹⁹⁴ See, e.g., *SFPP, L.P. v. FERC*, 967 F.3d 788, 797 (D.C. Cir. 2020), *cert. dismissed*, 141 S. Ct. 2170 (2021) (finding that on remand it is up to the Commission to determine if the record should be reopened).

projects,¹⁹⁵ during this remand proceeding the Commission provided additional opportunities for the public to comment and respond to information filed by Rio Grande and Rio Bravo related to the issues before us on remand. As stated above, on September 30, 2022, we explicitly solicited comments on the responses provided by Rio Grande and Rio Bravo to Commission staff's information requests and received over 150 comments. We have considered and responded to all comments within the scope of this remand proceeding and, therefore, because the record is sufficient for us to address the issues identified by the court, we decline to hold additional public meetings on the remanded issues. As for requests related to Spanish translation of documents, while we are not providing such translations in this proceeding, the Commission continues to consider how we can provide greater accessibility to our processes for non-English speaking populations.

86. On November 4, 2022, Rio Grande, American Petroleum Institute, and Rio Bravo separately submitted comments requesting prompt rulings on the remanded issues and the pipeline amendment. As we are issuing this order, the requests are moot.

87. On December 2, 2022, Vecinos para el Bienestar de la Comunidad Costera and Sierra Club filed a joint comment letter pointing out discrepancies between Rio Grande and Texas LNG Brownsville LLC's (Texas LNG) air modeling data provided in response to Commission staff's information requests and arguing that the companies must explain these discrepancies so that the Commission can properly analyze the impacts of the projects on the surrounding environment and communities.¹⁹⁶ Rio Grande's November 2, 2022 data response to Commission staff's August 16, 2022 environmental information request included updated refined air quality modeling, and on January 20 and 27, 2023, Rio Grande submitted additional information regarding the air modeling discrepancies, which is discussed below.¹⁹⁷

¹⁹⁵ See Final EIS at 4-468. As the final EIS notes, the applicant provided materials regarding the project in both English and Spanish and Spanish-speaking representatives were present at both the public scoping and comment meetings held in Port Isabel.

¹⁹⁶ Commenters also allege that the Commission improperly used significant impact levels to "determine whether a project causes or contributes to exceedances of the National Ambient Air Quality Standards and the emissions from the facility will have disproportionately high and adverse impacts on Environmental Justice communities," and recommend using other modeling approaches for determining impacts on such communities. Vecinos para el Bienestar de la Comunidad Costera and Sierra Club December 2, 2022 Comments at 4. These comments are discussed in the environmental justice section below.

¹⁹⁷ See *infra* PP 138-151.

2. Comments Outside the Scope of this Order

88. Commenters raised issues that, except with respect to comments on potential impacts to environmental justice communities, are outside the scope of the court's mandate. These comments generally fall within the following categories: (1) opposition to the Rio Grande LNG Terminal and Rio Bravo Pipeline Project and the Commission's approval of both projects; (2) general comments in support of the projects and requests for regulatory clarity;¹⁹⁸ (3) cultural resource concerns, including concerns relating to consultation with Tribes; (4) biological resource concerns, including impacts on endangered species, wetlands, and permits under the Clean Water Act; (5) upstream impacts; (6) market need and general public interest concerns; and (7) various opinions regarding the Commission, LNG, and energy infrastructure. The Commission will not address these arguments because the Commission considered them in the Authorization and Rehearing Orders¹⁹⁹ and the court's remand was limited to two issues—whether the social cost of GHGs or similar protocol should be used and the scope of the Commission's environmental justice analysis—and thus all other issues are collateral attacks on those orders and need not be considered further.²⁰⁰

¹⁹⁸ See, e.g., State Representative Erin Elizabeth Gamez March 17, 2023 Comments; Port of Brownsville Chairman Esteban Guerra March 16, 2023 Comments; Los Fresnos Chamber of Commerce Executive Director Val Champion March 16, 2023 Comments; Valley Regional Medical Center Chief Executive Officer David Irizarry March 15, 2023 Comments; Mayor Alejandro Flores (City of Los Fresnos, Texas) March 15, 2023 Comments; Cameron County Commissioner Sofia C. Benavides March 14, 2023 Comments; U.S. Representatives Dan Crenshaw & Michael C. Burgess August 23, 2022 Comments; U.S. Representative Mayra Flores August 15, 2022 Comments; U.S. Senator John Cornyn et al. July 7 & June 28, 2022 Comments; U.S. Representative Bill Johnson June 13, 2022 Comments; and U.S. Representative Jake Ellzey May 25, 2022 Comments.

¹⁹⁹ See Rehearing Order, 170 FERC ¶ 61,046 at PP 10-20 (discussing market need and public interest); *id.* at PP 33, 84-89 (discussing threatened and endangered species); *id.* at P 83 (discussing wetlands); Authorization Order, 169 FERC ¶ 61,131 at PP 100-102 (addressing cultural resources); *id.* at PP 83-91 (discussing threatened and endangered species); *id.* at PP 75-76 (discussing wetlands); *id.* at PP 75, 77, & 128 (addressing CWA permit concerns); *id.* at P 59 (discussing upstream impacts). See also Final EIS at 4-55 to 4-68 (discussing wetlands); *id.* at 4-133 to 4-163 (discussing threatened and endangered species); *id.* at 4-238 to 4-242 (discussing cultural resources).

²⁰⁰ See, e.g., *Fla. Se. Connection*, 162 FERC ¶ 61,233, at P 16 (2018) (declining to consider issues that fell outside the scope of the court's mandate); *Arlington Storage Co.*,

B. Remand Discussion

89. As discussed above, the D.C. Circuit remanded the Commission's orders authorizing the Rio Grande LNG Terminal and the Rio Bravo Pipeline Project and directed the Commission to: (1) address the argument that it must, under CEQ's regulations, apply the social cost of carbon protocol to analyze the projects' impacts on climate change; and (2) explain the decision to limit the scope of its environmental justice analysis of the projects' impacts to those communities within two miles of the project or else analyze the project's impacts within a different radius. In response to the court's directive, we address the argument regarding the social cost of carbon and 40 C.F.R. § 1502.21(c) as well as update our analysis of the projects' environmental justice impacts consistent with the Commission's current practice and with CEQ²⁰¹ and the U.S. Environmental Protection Agency (EPA)²⁰² guidance.

1. Greenhouse Gas Emissions and Climate Change

90. The court directed the Commission, on remand, to explain whether section 1502.21(c) of CEQ's NEPA-implementing regulations requires the Commission to "apply the social cost of carbon protocol or some other analytical framework, as 'generally accepted in the scientific community' within the meaning of the regulation, and if not, why not."²⁰³ Sierra Club asserts that, in lieu of comparing the GHG emissions of a project to the overall emission reduction targets of a state or national goals, the Commission could use the social cost of carbon tool to help it assess significance.²⁰⁴

LLC, 149 FERC ¶ 61,158 (2015) (rejecting a request for rehearing of a notice to proceed with construction as a collateral attack on the underlying orders).

²⁰¹ CEQ, *Environmental Justice: Guidance Under the National Environmental Policy Act* 4 (Dec. 1997) (CEQ's *Environmental Justice Guidance*), https://www.energy.gov/sites/default/files/nepapub/nepa_documents/RedDont/G-CEQ-EJGuidance.pdf.

²⁰² See generally EPA, *Promising Practices for EJ Methodologies in NEPA Reviews* (Mar. 2016) (*Promising Practices*), https://www.epa.gov/sites/default/files/2016-08/documents/nepa_promising_practices_document_2016.pdf.

²⁰³ *Vecinos*, 6 F.4th at 1330 (quoting 40 C.F.R. § 1502.21(c)).

²⁰⁴ Sierra Club April 27, 2022 Motion to Intervene at 20.

91. Section 1502.21(c) of CEQ's regulations requires that,

[i]f the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are unreasonable or the means to obtain it are not known, the agency shall include within the environmental impact statement:

- (1) A statement that such information is incomplete or unavailable;
- (2) A statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;
- (3) A summary of existing credible scientific evidence that is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and
- (4) The agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community.²⁰⁵

92. The social cost of carbon protocol, now updated to calculate the social cost of specific GHGs,²⁰⁶ is an administrative tool intended to quantify, in dollars, estimates of long-term damage that may result from future emissions of carbon dioxide, nitrous oxide, and methane. Accordingly, although we are including the social cost of GHG figures for informational purposes, we find that because the social cost of GHGs tool was not developed for project level review and, as discussed below, does not enable the Commission to credibly determine whether the GHG emissions are significant, section 1502.21 of the CEQ regulations does not require its use in this proceeding.

²⁰⁵ 40 C.F.R. § 1502.21(c). We note that at the time the Final EIS was prepared, this regulation was codified at 40 C.F.R. § 1502.22(b).

²⁰⁶ The IWG published its first estimates of the social cost of carbon in 2010, which calculated the cost of the damages created by one extra ton of carbon dioxide emissions. In 2016, the IWG published a technical update that included the social costs of methane (social cost of CH₄) and nitrous oxide (social cost of N₂O) thus creating the social cost of GHGs nomenclature.

93. While we have recognized in some past orders that social cost of GHGs may have utility in certain contexts such as rulemakings,²⁰⁷ we have also found that calculating the social cost of GHGs does not enable the Commission to determine credibly whether the reasonably foreseeable GHG emissions associated with a project are significant or not significant in terms of their impact on global climate change.²⁰⁸ Currently, however, there are no criteria to identify what monetized values are significant for NEPA purposes, and we are currently unable to identify any such appropriate criteria.²⁰⁹ Nor are we aware of any other currently scientifically accepted method that would enable the Commission to determine the significance of reasonably foreseeable GHG emissions.²¹⁰ The D.C. Circuit has repeatedly upheld the Commission's decisions not to use the social cost of GHGs, including to assess significance.²¹¹

²⁰⁷ *Fla. Se. Connection, LLC*, 164 FERC ¶ 61,099, at PP 35-37 (2018).

²⁰⁸ *See Mountain Valley Pipeline, LLC*, 161 FERC ¶ 61,043 at P 296, (2017), *aff'd sub nom., Appalachian Voices v. FERC*, 2019 WL 847199 (D.C. Cir. 2019); *Del. Riverkeeper v. FERC*, 45 F.4th 104, 111 (D.C. Cir. 2022). The social cost of GHGs tool merely converts GHG emissions estimates into a range of dollar-denominated figures; it does not, in itself, provide a mechanism or standard for judging "significance."

²⁰⁹ *Tenn. Gas Pipeline Co., L.L.C.*, 181 FERC ¶ 61,051 at P 37; *see also Mountain Valley Pipeline, LLC*, 161 FERC ¶ 61,043 at P 296, *order on reh'g*, 163 FERC ¶ 61,197, at PP 275-297 (2018), *aff'd, Appalachian Voices v. FERC*, No. 17-1271, 2019 WL 847199, at 2 (D.C. Cir. Feb. 19, 2019) (unpublished) ("[The Commission] gave several reasons why it believed petitioners' preferred metric, the Social Cost of Carbon tool, is not an appropriate measure of project-level climate change impacts and their significance under NEPA or the Natural Gas Act. That is all that is required for NEPA purposes."); *EarthReports v. FERC*, 828 F.3d 949, 956 (D.C. Cir. 2016) (accepting the Commission's explanation why the social cost of carbon tool would not be appropriate or informative for project-specific review, including because "there are no established criteria identifying the monetized values that are to be considered significant for NEPA purposes"); *Tenn. Gas Pipeline Co., L.L.C.*, 180 FERC ¶ 61,205, at P 75 (2022); *See, e.g., LA Storage, LLC*, 182 FERC ¶ 61,026, at P 14 (2023); *Columbia Gulf Transmission, LLC*, 180 FERC ¶ 61,206 at P 91.

²¹⁰ *See, e.g., LA Storage, LLC*, 182 FERC ¶ 61,026, at P 14 ("there are currently no criteria to identify what monetized values are significant for NEPA purposes, and we are currently unable to identify any such appropriate criteria").

²¹¹ *See, e.g., EarthReports*, 848 F.3d at 956 (upholding the Commission's decision not to use the social cost of carbon tool due to a lack of standardized criteria or methodologies, among other things); *Del. Riverkeeper v. FERC*, 45 F.4th 104 (also

94. For informational purposes, we are disclosing Commission staff's estimate of the social cost of GHGs associated with the reasonably foreseeable emissions from the projects, i.e., the emissions from the construction and operation of the projects.²¹²

95. Commission staff calculated the social cost of GHGs based on methods and values contained in the Interagency Working Group on the Social Cost of Greenhouse Gases (IWG)'s current draft guidance but note that different values will result from the use of other methods.²¹³

96. For this proposed action, the reasonably foreseeable and causally connected GHG emissions are those associated with the projects' construction and operation. Rio Grande estimated that construction of the Rio Grande LNG Terminal would result in 2,659,332 tons of CO₂e emissions (equivalent to 2,412,505 metric tons of CO₂e) over the eight years of construction, inclusive of terminal, barge, and commissioning emissions.²¹⁴ GHG emissions, from the operation of the Rio Grande LNG Terminal would result in annual CO₂e emissions of about 6,451,324 tons per year (tpy) (equivalent to

upholding the Commission's decision not to use the social cost of carbon); *Appalachian Voices v. FERC*, 2019 WL 847199 (D.C. Cir. 2019) (same).

²¹² See *Vecinos*, 6 F.4th at 1329-30.

²¹³ Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990, Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, (Feb. 2021), https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf (IWG Interim Estimates Technical Support Document).

²¹⁴ As part of the remand proceeding, Commission staff issued data requests to Rio Grande to provide updated construction and operational emission estimates for the Rio Grande LNG Terminal. Staff uses the company's updated emissions numbers here. See Rio Grande January 27, 2023 Response to Commission staff January 6, 2023 Environmental Information Request; Rio Grande August 22, 2022 Response to Commission staff August 16, 2022 Environmental Information Request.

5,852,543 metric tpy),²¹⁵ which calculation assumes 100% utilization; i.e., it is assumed that the facilities are operated at maximum capacity for 365 days/year, 24 hours/day.²¹⁶

97. Rio Bravo estimated the construction of the Rio Bravo Pipeline Project, as amended,²¹⁷ would result in 948,629 tons of CO₂e emissions (equivalent to 860,582 metric tons of CO₂e) over the five years of construction.²¹⁸ GHG emissions from the operation of the Rio Bravo Pipeline Project would result in annual CO₂e emissions of about 761,655 tons per year (tpy) (equivalent to 690,962 metric tpy), which calculation assumes 100% utilization; i.e., it is assumed that the facilities are operated at maximum capacity for 365 days/year, 24 hours/day.²¹⁹

98. Commission staff calculated the social cost of carbon dioxide, nitrous oxide, and methane for the construction and operation of the Rio Grande LNG Terminal and Rio Bravo Pipeline Project.²²⁰ For the calculations, staff assumed discount rates of

²¹⁵ *Id.* As Rio Grande brings the trains online in phases, the operational emission estimates would be 1,632,275 tons of CO₂e emissions (equivalent to 1,480,775 metric tons of CO₂e) in 2026, 3,881,164 tons of CO₂e emissions (equivalent to 3,520,933 metric tons of CO₂e) in 2027, and 5,166,246 tons of CO₂e emissions (equivalent to 4,686,739 metric tons of CO₂e) in 2028. *Id.*

²¹⁶ *Id.* The estimate also includes fugitive emissions. We note that this calculation is an overestimate because facilities likely operate at full capacity during, what are typically, limited periods of full demand.

²¹⁷ As discussed above, the Amendment Project (Docket No. CP20-481-000) will eliminate Compressor Stations 2 and 3, Booster Stations 1 and 2 and related meter stations and modify Compressor Station 1 by increasing the horsepower of the station from 180,000 to 282,000 hp by replacing the six 30,000-hp natural gas turbine compressor units currently approved with four 43,000-hp natural gas turbine compressor units and two 55,000-hp electric-driven compressor units.

²¹⁸ As part of the remand proceeding, Commission staff issued data requests to Rio Bravo to provide updated construction and operational emission estimates for the Rio Bravo Pipeline Project. Staff uses the company's updated emissions numbers here. *See* Rio Bravo February 24, 2023 Response to Commission staff's February 15, 2023 Environmental Information Request.

²¹⁹ *Id.* The estimate also includes fugitive emissions.

²²⁰ As noted above, Rio Grande and Rio Bravo provided updated emission estimates as part of the remand proceedings, which Commission staff used to calculate the social cost of GHGs. We note that this calculation is likely an overestimate because

five percent, three percent, and 2.5%,²²¹ the projects would begin construction activities in 2025, and that once construction activities are complete, emissions would transition to operational emissions. Noting these assumptions, the emissions from construction and operation of the Rio Grande LNG Terminal are calculated to result in a total social cost of GHGs equal to \$1,521,398,883, \$5,917,433,636, and \$8,996,451,667, respectively (all in 2020 dollars).²²² Based on the 95th percentile of the social cost of GHGs and the three percent discount rate,²²³ the total social cost of GHGs from the project is calculated to be \$18,044,727,663 (in 2020 dollars).

99. Applying the same assumptions, the emissions from construction and operation of the Rio Bravo Pipeline Project are calculated to result in a total social cost of GHGs equal to \$178,691,926, \$679,418,079, and \$1,027,470,669, respectively (all in 2020 dollars).²²⁴ Based on the 95th percentile of the social cost of GHGs and the three percent discount

pipelines only operate at full capacity during, what are typically, limited periods of full demand.

²²¹ IWG Interim Estimates Technical Support Document at 24. To quantify the potential damages associated with estimated emissions, the IWG methodology applies consumption discount rates to estimated emissions costs. The IWG's discount rates are a function of the rate of economic growth where higher growth scenarios lead to higher discount rates. For example, IWG's method includes the 2.5% discount rate to address the concern that interest rates are highly uncertain over time; the 3% value to be consistent with Office of Management and Budget Circular A-4 (2003) and the real rate of return on 10-year Treasury Securities from the prior 30 years (1973 through 2002); and the five percent discount rate to represent the possibility that climate-related damages may be positively correlated with market returns. Thus, higher discount rates further discount future impacts based on estimated economic growth. Values based on lower discount rates are consistent with studies of discounting approaches relevant for intergenerational analysis. *Id.* at 18-19, 23-24.

²²² The IWG draft guidance identifies costs in 2020 dollars. *Id.* at 5 (tbl. ES-I).

²²³ This value represents "higher-than-expected economic impacts from climate change further out in the tails of the [social cost of CO₂] distribution." *Id.* at 11. In other words, it represents a higher impact scenario with a lower probability of occurring.

²²⁴ The IWG draft guidance identifies costs in 2020 dollars. *Id.* at 5 (tbl. ES-I).

rate,²²⁵ the total social cost of GHGs from the project is calculated to be \$2,058,083,922 (in 2020 dollars).

100. Although Sierra Club recommends we articulate our own criteria for assessing the significance of the projected costs of the projects' greenhouse gas emission,²²⁶ Sierra Club does not propose how the Commission might identify which social cost of GHG costs would be significant for purposes of NEPA.

101. The Commission has disclosed the projects' reasonably foreseeable GHG emissions. By adopting the analysis in the final EIS and Amendment Project EA, we recognize that the projects' contributions to GHG emissions globally contribute incrementally to future climate change impacts,²²⁷ including impacts in the project region.²²⁸ We note that there currently are no accepted tools or methods for the Commission to use to determine significance, therefore the Commission is not herein characterizing these emissions as significant or insignificant.²²⁹ Accordingly, we have taken the required "hard look" and have satisfied our obligations under NEPA.

2. Environmental Justice

102. The court found the Commission's analysis of environmental justice impacts to be deficient, directing the Commission on remand to either explain why it chose to analyze the projects' impacts only on communities within a two-mile-radius area of review, or, in the alternative, to analyze the projects' impacts on communities in an area of review with a different radius from each project site, and determine whether the Commission's

²²⁵ This value represents "higher-than-expected economic impacts from climate change further out in the tails of the [social cost of CO₂] distribution." *Id.* at 11. In other words, it represents a higher impact scenario with a lower probability of occurring.

²²⁶ Rehearing Order, 170 FERC ¶ 61,046 at PP 100-11; *see also* Sierra Club April 27, 2022 Motion to Intervene at 19-20.

²²⁷ *See* Final EIS at 4-481; Amendment Project EA at 44-47.

²²⁸ *See* Final EIS at 4-480 – 4-481 (discussing observations from the Fourth Assessment Report); Amendment Project EA at 45-46 (same).

²²⁹ The February 18, 2022 Interim GHG Policy Statement, *Consideration of Greenhouse Gas Emissions in Nat. Gas Infrastructure Project Revs.*, 178 FERC ¶ 61,108 (2022) which proposed to establish a NEPA significance threshold of 100,000 tons per year of CO₂e as a matter of policy, has been suspended, and opened to further public comment. *Order on Draft Policy Statements*, 178 FERC ¶ 61,197, at P 2 (2022).

environmental justice conclusion still holds.²³⁰ Accordingly, on remand, Commission staff conducted a new environmental justice analysis using our current methods for determining an area of review, consistent with CEQ²³¹ and EPA²³² guidance and recommendations, and analyzed the projects' impacts on environmental justice communities within those areas. Below, Commission staff has identified the presence of impacted environmental justice communities and has analyzed associated impacts from the Rio Grande LNG Terminal and Rio Bravo Pipeline Project, as amended in Docket No. CP20-481-000.²³³

103. In conducting NEPA reviews of proposed natural gas projects, the Commission follows Executive Order 12898, which directs federal agencies to identify and address “disproportionately high and adverse human health or environmental effects” of their actions on minority and low-income populations (i.e., environmental justice communities).²³⁴ Executive Order 14008 also directs agencies to develop “programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged

²³⁰ *Vecinos*, 6 F.4th at 1331.

²³¹ CEQ, *Environmental Justice: Guidance Under the National Environmental Policy Act* 4 (Dec. 1997) (CEQ's *Environmental Justice Guidance*), https://www.energy.gov/sites/default/files/nepapub/nepa_documents/RedDont/G-CEQ-EJGuidance.pdf.

²³² *See generally Promising Practices*.

²³³ All references to the Rio Bravo Pipeline Project throughout this section are to the project as amended in this order. Thus, for purposes of staff's environmental justice analysis the original pipeline project facilities that were eliminated by the Pipeline Amendment, e.g., Compressor Stations 2 and 3, one meter station at Compressor Station 1; and two interconnect booster stations in Kenedy County, Texas, are not analyzed herein.

²³⁴ Exec. Order No. 12,898, 59 Fed. Reg. 7629 (Feb. 11, 1994). While the Commission is not one of the specified agencies in Executive Order 12898, the Commission nonetheless addresses environmental justice in its analysis, in accordance with our governing regulations and guidance, and statutory duties. *See* 15 U.S.C. § 717b; *see also* 18 C.F.R. § 380.12(g) (requiring applicants for projects involving significant aboveground facilities to submit information about the socioeconomic impact area of a project for the Commission's consideration during NEPA review); FERC *Guidance Manual for Environmental Report Preparation*, at 4-76 to 4-80 (Feb. 2017), <https://www.ferc.gov/sites/default/files/2020-04/guidance-manual-volume-1.pdf>.

communities, as well as the accompanying economic challenges of such impacts.”²³⁵ Environmental justice is “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.”²³⁶

104. Consistent with CEQ and EPA guidance and recommendations, the Commission’s methodology for assessing environmental justice impacts considers: (1) whether environmental justice communities (e.g., minority or low-income populations)²³⁷ exist in the project area; (2) whether impacts on environmental justice communities are disproportionately high and adverse; and (3) possible mitigation measures.²³⁸ Consistent

²³⁵ Exec. Order No. 14,008, 86 Fed. Reg. 7619 (Jan. 27, 2021). The term “environmental justice community” includes disadvantaged communities that have been historically marginalized and overburdened by pollution. *Id.* at 7629. The term also includes, but may not be limited to minority populations, low-income populations, or indigenous peoples. *See* EPA, *EJ 2020 Glossary* (Aug. 18, 2022), <https://www.epa.gov/environmentaljustice/ej-2020-glossary>.

²³⁶ EPA, *Learn About Environmental Justice*, <https://www.epa.gov/environmentaljustice/learn-about-environmental-justice> (Sep. 6, 2022). Fair treatment means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies. *Id.* Meaningful involvement of potentially affected environmental justice community residents means: (1) people have an appropriate opportunity to participate in decisions about a proposed activity that may affect their environment and/or health; (2) the public’s contributions can influence the regulatory agency’s decision; (3) community concerns will be considered in the decision-making process; and (4) decision makers will seek out and facilitate the involvement of those potentially affected. *Id.*

²³⁷ *See generally* Exec. Order No. 12,898, 59 Fed. Reg. 7629. Minority populations are those groups that include: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic.

²³⁸ CEQ offers recommendations on how federal agencies can provide opportunities for effective community participation in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of public meetings, crucial documents, and notices. There were opportunities for public involvement during the Commission’s prefilings and environmental review processes during the original authorization proceeding. Final EIS at 1-11 to 1-13, and 4-236. As part of the remand proceeding, the Commission requested public comments and reply comments on Rio Grande’s and

with the Commission's current methodology for identification of environmental justice communities, staff reviewed 2020 U.S. Census Bureau American Community survey data for the impact area surrounding the Rio Grande LNG Terminal and Rio Bravo Pipeline Project. As recommended in *Promising Practices*, the Commission uses the 50% and the meaningfully greater analysis methods to identify minority populations.²³⁹ Specifically, a minority population is present where either: (1) the aggregate minority population of the block groups in the affected area exceeds 50% ; or (2) the aggregate minority population in the block group affected is 10% higher than the aggregate minority population percentage in the county.²⁴⁰

105. CEQ's *Environmental Justice Guidance* also directs low-income populations to be identified based on the annual statistical poverty thresholds from the U.S. Census Bureau. Using *Promising Practices*' low-income threshold criteria method, low-income populations are identified as block groups where the percent of a low-income population in the identified block group is equal to or greater than that of the county.²⁴¹

106. To identify potential environmental justice communities, Commission staff used 2020 U.S. Census American Community Survey data²⁴² for the race, ethnicity, and poverty data at the state, county, and block group level. Additionally, in accordance with *Promising Practices*, staff used EJScreen, EPA's environmental justice mapping and screening tool, as an initial step to gather information regarding minority and low-income populations, potential environmental quality issues, environmental and demographic indicators, and other important factors. Appendix B provides current environmental justice community data for the areas affected by the projects, including data for the

Rio Bravo's responses to earlier information requests. September 30, 2022 Notice Seeking Public Comment on Responses to Information Requests.

²³⁹ See *Promising Practices* at 21-25.

²⁴⁰ Here, Commission staff selected Cameron, Jim Wells, Kleberg, Nueces, and Willacy Counties, Texas as the comparable reference communities to ensure that affected environmental justice communities are properly identified. A reference community may vary according to the characteristics of the particular project and the surrounding communities.

²⁴¹ Tables 1, 2, and 3 of Appendix B present this data.

²⁴² U.S. Census Bureau, American Community Survey 2020 ACS 5-Year Estimates Detailed Tables, File# B17017, *Poverty Status in the Past 12 Months by Household Type by Age of Householder*, [https://data.census.gov/cedsci/table?q=B17017;File#B03002 Hispanic or Latino Origin By Race](https://data.census.gov/cedsci/table?q=B17017;File#B03002%20Hispanic%20or%20Latino%20Origin%20By%20Race).

affected block groups, state, and county, and maps detailing the affected block groups in relation to the Rio Grande LNG Terminal and Rio Bravo Pipeline Project facilities.

107. Commission staff collected the block group level data, as discussed in further detail below, and conducted an impacts analysis for the identified environmental justice communities and evaluated health and environmental hazards, the natural physical environment, and associated social, economic, and cultural factors to determine whether impacts would be disproportionately high and adverse on environmental justice communities and also whether those impacts would be significant.²⁴³ Commission staff assessed whether impacts on an environmental justice community are disproportionately high and adverse, consistent with EPA's recommendations in *Promising Practices*.²⁴⁴

108. As discussed above, the court's opinion explained that an agency's environmental justice analysis must have an area of review for impacts on environmental justice communities that is reasonable and adequately explained, with a rational connection between the facts and the decision made.²⁴⁵ In response, Commission staff has reanalyzed the projects' impacts on environmental justice communities within an area of review based on the measured distance of the furthest estimated direct impact for each project site.²⁴⁶

109. Project facilities located within environmental justice communities include the Rio Grande LNG Terminal, and the following Rio Bravo Pipeline Project facilities: a

²⁴³ See *Promising Practices* at 33 (stating that "an agency may determine that impacts are disproportionately high and adverse, but not significant within the meaning of NEPA" and in other circumstances "an agency may determine that an impact is both disproportionately high and adverse and significant within the meaning of NEPA").

²⁴⁴ *Id.* at 44-46 (explaining that there are various approaches to determining whether an action will cause a disproportionately high and adverse impact, and that one recommended approach is to consider whether an impact would be "predominantly borne by minority populations or low-income populations"). We recognize that EPA and CEQ are in the process of updating their guidance regarding environmental justice and we will review and incorporate that anticipated guidance in our future analysis, as appropriate.

²⁴⁵ *Vecinos*, 6 F.4th at 1330.

²⁴⁶ Mr. John Young requested that the Commission incorporate in the comparison maps exhibiting the authorized project path and minority and low-income population instead of the modified project path and minority and low-income populations. Mapping of all facilities in relation to minority and low-income communities is included in Appendix B. App. B Fig. 1 to 23.

majority of the 135.7-mile,²⁴⁷ 48-inch-diameter natural gas pipelines (Pipelines 1 and 2); two meter stations (Meter Station HS4 and the Meter Station located at the LNG terminal); Contractor Yards 1, 2, and 3; and portions of the 2.4-mile-long pipeline header system. Rio Bravo's Meter Station HS3 is not located within an environmental justice block group; however, there is an environmental justice block group within a 1-mile radius of the facility. Rio Bravo's Compressor Station 1 is not located within an environmental justice community; however, there are environmental justice communities within the 50-kilometer geographic scope of analysis. Rio Bravo's Meter Stations HS1 and HS2 are not located within an environmental justice community, and there are no environmental justice communities within a one-mile radius of the facilities.

110. Sierra Club comments that the Commission must perform an adequate environmental justice analysis incorporating relevant changes in environmental justice data since the Commission's initial analysis. We agree and confirm that, herein, Commission staff have conducted an updated analysis of impacts on environmental justice communities using both updated data and an expanded area of review radius. For this analysis, Commission staff determined that potential impacts on the identified environmental justice communities may relate to wetlands, recreational and subsistence fishing, tourism, socioeconomics, road and marine traffic, noise, safety, air quality, and visual resources. Environmental justice concerns are not present for other resource areas such as geology, groundwater, wildlife, land use, surface water,²⁴⁸ or cultural resources,

²⁴⁷ As noted above in footnote 37, Rio Bravo must further modify – for Commission review through either the variance or amendment process – an approximately 6.7 portion of its pipeline in in compliance with FWS's October 2, 2019 Biological Opinion (the BO reroute). In its December 29, 2022 response to a Commission staff data request, Rio Bravo provided information regarding three possible pipeline reroutes that it plans to propose to the Commission either as a variance request, if applicable, or an amendment: the approximately 6.7 mile BO reroute and two other landowner-driven reroutes, which are approximately 0.6 and 0.8 miles long, referred to as the North Floodway and Arroyo Colorado Route Adjustment, respectively. Based on the information provided, Commission staff confirmed that the three pipeline reroutes are entirely within the same environmental justice census block groups as the original pipeline route. Thus, the pipeline reroutes will not alter our analysis of the project impacts on environmental justice communities in this order.

²⁴⁸ The final EIS determined that increased vessel traffic along the Brownsville Ship Channel would result in a significant cumulative impact on surface water resources during operations from increases in turbidity and shoreline erosion. *See* Final EIS at 4-427. Impacts on environmental justice communities associated with turbidity are discussed below under *Tourism*. Impacts on environmental justice communities associated with shoreline erosion are discussed below under *Marine Traffic*.

due to the minimal overall impact the project would have on environmental justice communities. Sierra Club requests that the Commission analyze “whether [proposed] mitigation measures will be effective at blunting any disproportionate impacts that will be experienced by environmental justice communities.”²⁴⁹ A discussion of applicable mitigation measures is included for each impact topic.

a. Rio Grande LNG Terminal Project

i. Brownsville and Port Isabel Offsite Parking and Storage Areas

111. Rio Grande has identified two locations in Cameron County that will be used for temporary offsite parking and storage. For the Brownsville offsite parking/storage location, Commission staff identified two environmental justice community block groups within a one-mile radius of the site. Of those block groups, both have a minority population and a low-income population that exceed the respective thresholds. For the Port Isabel offsite parking/storage location, Commission staff identified four environmental justice community block groups within a one-mile radius of the site. Of those block groups, one has a minority population that exceeds 50%, one has a low-income population that is equal to or greater than its respective county, and two have both a minority population and a low-income population that exceed the respective thresholds.²⁵⁰

112. Commission staff finds that a one-mile radius around the Brownsville and Port Isabel sites is the appropriate unit of geographic analysis for assessing the facilities’ impacts on environmental justice communities given the likely concentration of air quality, noise, visual, and traffic impacts. Sierra Club contends that FERC must analyze offsite parking and storage impacts to environmental justice communities “within a rationally determined geographic radius.”²⁵¹ Commission staff has determined that the temporary impacts related to noise, visual, traffic, and air emissions from the offsite parking locations would be localized such that a radius greater than one mile is not warranted. A one-mile radius for each of the two offsite parking locations represents a conservative estimate of the extent of impacts on environmental justice communities, the furthest of which would be associated with traffic impacts. Based on an updated traffic impact analysis,²⁵² the roadway level of service would remain unchanged at all locations

²⁴⁹ Sierra Club et al. October 19, 2022 Comments at 16.

²⁵⁰ App. B at tbl. 3.

²⁵¹ Sierra Club et al. October 19, 2022 Comments at 15.

²⁵² Rio Grande March 13, 2019 Filing (Traffic Impact Analysis Update).

on SH48 within one mile of the parking facilities;²⁵³ therefore, a one-mile radius is sufficient for analysis of impacts.

113. Rio Grande has indicated that it does not plan to use the Brownsville and Port Isabel offsite parking/storage locations until use of its onsite parking and storage areas become limited, which it anticipates to occur near the start of construction of Liquefaction Train 4.²⁵⁴ At this point, Rio Grande states that personnel will use the Brownsville offsite parking location and be bused to the LNG terminal, resulting in a maximum of 150 bus roundtrips (7.1 miles each way).²⁵⁵ The nearest residence to this offsite location is over three miles away (southwest of the offsite location).²⁵⁶ Traffic to and from this offsite location to the LNG terminal would use SH-48 and not pass any residences.²⁵⁷

114. When onsite storage areas become limited, approximately 50 of the 150 bus roundtrips per day are expected from the Port Isabel location.²⁵⁸ In addition, when onsite storage areas become limited, approximately 50 material truck roundtrips per day are expected from this offsite location.²⁵⁹ Sierra Club contends that impacts on environmental justice communities related to increased traffic must be analyzed regardless of the current use of the land and potential impacts must be accurately identified.²⁶⁰ The nearest residence within an environmental justice community is located approximately 0.3 miles northwest of this offsite location.²⁶¹ Additionally, Rio Grande's use of this offsite location is not inconsistent with current traffic, as it is located within an industrial area of Port Isabel and large material trucks regularly transit in and out of the

²⁵³ Rio Grande August 22, 2022 Response to Commission staff's August 16, 2022 Environmental Information Request at 24.

²⁵⁴ *Id.* at 22.

²⁵⁵ *Id.*

²⁵⁶ Rio Grande August 22, 2022 Response to Commission staff's August 16, 2022 Environmental Information Request at 17.

²⁵⁷ *Id.*

²⁵⁸ *Id.*

²⁵⁹ *Id.*

²⁶⁰ Sierra Club et al. October 19, 2022 Comments at 15.

²⁶¹ Rio Grande August 22, 2022 Response to Commission staff's August 16, 2022 Environmental Information Request at 17.

area.²⁶² While travelers along SH-48 from offsite locations to the LNG terminal may experience additional adverse impacts associated with traffic delays, traffic levels would maintain a Level of Service²⁶³ C or better and, accordingly, we conclude that those impacts will be less than significant.²⁶⁴

115. The Brownsville and Port Isabel storage areas would be located in areas of heavy industry.²⁶⁵ As such, visual receptors in the vicinity of these storage areas would include workers and visitors at nearby industrial/commercial facilities and motorists on nearby roadways.²⁶⁶ Based on Commission staff's updated environmental justice analysis, and given the location of the storage areas at existing industrial sites, we conclude that impacts on visual receptors, including any individuals from environmental justice communities, would be less than significant.²⁶⁷

116. As a result of the use of the Brownsville and Port Isabel offsite locations, individuals from environmental justice communities may experience increases in vehicle-associated noise (loud engines and horns). Based on Commission staff's updated environmental justice analysis, and given the distance to residential areas (three miles from the Brownsville site and 0.3 mile from the Port Isabel site), we conclude that impacts on local residents, including any individuals from environmental justice communities, would be less than significant.

117. As a result of the use of the Brownsville and Port Isabel offsite locations, individuals from environmental justice communities may experience a slight increase in air emissions from vehicles and buses accessing the office site locations. Based on Commission staff's updated environmental justice analysis, and given the distance to residential areas (three miles from the Brownsville site and 0.3 mile from the Port Isabel

²⁶² *Id.*

²⁶³ Level of Service is a qualitative measure of traffic flow. There are six levels of service ranging from A to F. LOS A represents the best conditions and LOS F represents the worst conditions. LOS "A" to "C" is considered acceptable. *See* Rio Grande March 13, 2019 Filing at 4.

²⁶⁴ Rio Grande August 22, 2022 Response to Commission staff's August 16, 2022 Environmental Information Request at 24.

²⁶⁵ Final EIS at 4-199.

²⁶⁶ *Id.*

²⁶⁷ *Id.*

site), we conclude that impacts on local residents, including any individuals from environmental justice communities, would be less than significant.

ii. Rio Grande LNG Terminal

118. For the Rio Grande LNG Terminal, Commission staff determined that a 50-kilometer radius around the approved Rio Grande LNG Terminal site is the appropriate unit of geographic analysis for assessing project impacts on environmental justice communities. This radius for the LNG terminal represents a conservative estimate of the furthest possible extent of impacts, the most distant of which would be associated with air quality impacts.²⁶⁸ With respect to the Rio Grande LNG Terminal, the air modeling indicates that the radius of impact (i.e., the distance at which a criteria pollutant falls below the defined significant impact level²⁶⁹) is approximately 12.8 kilometers.²⁷⁰

119. Commission staff identified 286 environmental justice community block groups (out of 293 total block groups) within a 50-kilometer radius of the LNG facility site. Of those 286 block groups, 131 have a minority population that either exceeds 50% or is meaningfully greater than their respective counties, two have a low-income population that is equal to or greater than their respective counties, and 153 have both a minority population and a low-income population that exceed the respective thresholds.²⁷¹ Commission staff's following updated analysis of potential LNG terminal impacts associated on the identified environmental justice communities addresses wetlands, recreational fishing, tourism, socioeconomics, traffic, noise, safety, air quality, greenhouse gases, and visual resources.

²⁶⁸ Fifty kilometers is the distance used by the EPA for cumulative air modeling for major stationary sources under its Prevention of Significant Deterioration (PSD) air permitting requirements. 40 C.F.R. § 51, app. W (2022), and is generally considered to be the maximum distance that can be accommodated by the assumptions inherent in refined steady-state Gaussian plume air modeling applications.

²⁶⁹ A modeled result predicting that a proposed source's maximum impact will be below the corresponding significant impact level value may generally be considered to be a sufficient demonstration that the proposed source will not cause or contribute to a violation of the applicable National Ambient Air Quality Standard or Prevention of Significant Deterioration increment.

²⁷⁰ Rio Grande January 27, 2023 Environmental Information Request Response at 26. Predicted impacts below the significant impact level are not considered by the EPA to have an adverse effect on ambient air quality.

²⁷¹ App. B at tbl. 1.

(a) **Wetlands**

120. Related to wetlands, the final EIS finds that the total impacted wetland area for the Rio Grande LNG Terminal (182.4 acres) represents about 0.28% of the approximately 65,495 acres of wetlands contained within the HUC 12²⁷² watershed, in which the project is located.²⁷³ The loss of wetland habitat, and the subsequent decrease in wetland benefits (i.e., shoreline and habitat protection for a variety of plant and animal species that can be used for recreation and/or sustenance, and education opportunities), could affect environmental justice communities near the project, particularly the communities located near the LNG terminal in Census Tract 142.02, Block Group 2 and Census Tract 127, Block Group 2, Census Tract 123.04, Block Group 4, and Census Tract 123.05, Block Group 1.²⁷⁴ We note that Rio Grande is required to obtain applicable Army Corps permits for permanent loss of wetland habitat and implement any mitigation measures required by the Army Corps for that loss.²⁷⁵ All wetlands mitigation for the LNG terminal facilities would take place in the same watershed as the project,²⁷⁶ located within the Miradores Mitigation site (approximately 11 miles north of the terminal) and the Loma Ecological Preserve (one mile south of the terminal).²⁷⁷ Based on Commission staff's updated environmental justice analysis for the LNG terminal, we conclude that with the implementation of the mitigation measures discussed in the final EIS and in the Authorization Order, impacts on wetlands would be minimized and mitigated and would not have a significant impact on environmental justice communities.

121. Environmental justice communities in the study area would experience cumulative impacts on wetlands due to impacts previously discussed, along with additional impacts from the project within the cumulative geographic scope for wetlands;²⁷⁸ however, all impacts will be appropriately mitigated and cumulative impacts with the addition of the

²⁷² Bahia Grande-BSC Hydrologic Unit Code (HUC) 12 Watershed.

²⁷³ Final EIS at 4-429.

²⁷⁴ App. B Fig. 1 to 23.

²⁷⁵ Final EIS at 4-61.

²⁷⁶ Rio Grande September 27, 2021 Filing.

²⁷⁷ Final EIS at 4-68.

²⁷⁸ Rio Grande May 20, 2022 Response to Commission staff's May 2, 2022 Environmental Information Request at tbl. 4.13.1-2.

project would be less than significant.²⁷⁹ Because all impacts would be appropriately mitigated, we further conclude that the overall cumulative wetland impacts on environmental justice communities would be less than significant.

(b) Recreational and Subsistence Fishing

122. As stated in the final EIS, recreational fishing activities could be affected by construction and operation of the LNG terminal due to increased noise, restrictions on fishing in the immediate vicinity of the LNG terminal, and LNG and barge vessel traffic.²⁸⁰ Given that a majority of the communities within the study area are considered environmental justice communities, recreational and subsistence fishing users of the area waterbodies, likely include individuals from environmental justice communities, particularly the communities located nearby in Census Tract 142.02, Block Group 2 and Census Tract 127, Block Group 2, Census Tract 123.04, Block Group 4, and Census Tract 123.05, Block Group 1. About 1.5 miles of the 17-mile-long shoreline of the channel would be developed for the LNG terminal site.²⁸¹ Construction activities at the LNG terminal would not restrict fishing access to bays in the project area or the Gulf of Mexico. Fishing along the eastern bank of the Bahia Grande Channel on the LNG terminal site would be prohibited during construction.²⁸² Nevertheless, fishing opportunities would still exist along the remainder of the undeveloped channel shoreline, as well as in nearby public areas, including the south end of Bahia Grande.²⁸³ Permanent impacts on recreational and subsistence fishing by individuals from environmental justice communities may occur due to the loss of available fishing areas from operation of the marine facilities and LNG carrier traffic. Based on Commission staff's updated environmental justice analysis, we conclude that recreational and subsistence fishing impacts on environmental justice communities associated with construction and operation of the LNG terminal would occur, but due to the overall size of the waterway and additional available recreational and subsistence fishing opportunities in the area, impacts would not be significant.

123. Environmental justice communities in the study area would experience cumulative impacts on fishing, including recreational and subsistence fishing due to delays for fishing vessels from the project operation and LNG vessel traffic along with additional

²⁷⁹ Final EIS at 4-430.

²⁸⁰ *Id.* at 4-219 to 4-220.

²⁸¹ *Id.* at 4-237.

²⁸² *Id.* at 4-219.

²⁸³ *Id.* at 4-237.

impacts from the project within the cumulative geographic scope for recreational and subsistence fishing;²⁸⁴ however, impacts with the addition of the project would be less than significant. Due to the overall size of the waterway and additional available recreational and subsistence fishing opportunities in the area, we further conclude that the cumulative recreational and subsistence fishing impacts on environmental justice communities would be less than significant.

(c) **Tourism**

124. Overall, the final EIS found that construction and operation of the projects could impact local tourism relating to beach and water-front activities; visiting state, local, and national parks; or wildlife viewing. For the Rio Grande LNG Terminal, the final EIS found that construction and operation of the site would impact local tourism through an increase in noise, changes in the visual landscape (including additional vessels and increased sedimentation in the Brownsville Ship Channel), and heavier traffic along SH-48.²⁸⁵ Although some visual and noise impacts may be experienced by beachgoers, bird-watchers, tour-operators, and other visitors, those impacts are expected to occur only in the immediate vicinity of the LNG terminal site.²⁸⁶ Given the extent of tourism areas (including birding watching areas, National Wildlife Refuges, National Historic Landmarks, and beaches) and the distance between the recreational portions of the areas and the LNG terminal site, we do not expect that either construction or operation would significantly impact tourism at these locations.²⁸⁷ Waterborne tourism (e.g., fishing, charter, and tour boats), in portions of South Bay, the Zapata boat launch, and within the Bahia Grande would likely experience moderate increases in ambient noise during certain construction activities at the LNG terminal. Although changes to the visitation patterns immediately adjacent to the LNG terminal could occur, they would not likely change the total number of visits to the general project area. In addition, boaters may experience minor impacts resulting from potential delays in launching fishing, charter, and tour boats during periods of LNG carrier transit.²⁸⁸

125. Given the number of tourism opportunities in the project area, tourists may go to other sites so that visitation patterns may change, but the number of visits to the project

²⁸⁴ Rio Grande May 20, 2022 Response to Commission staff's May 2, 2022 Environmental Information Request at tbl. 4.13.1-2.

²⁸⁵ Final EIS at 4-216.

²⁸⁶ *Id.*

²⁸⁷ *Id.* at 4-214 to 4-219.

²⁸⁸ *Id.* at 4-216.

area would likely not change. Given the availability of recreational opportunities further from the facility sites, the final EIS concluded that a decrease in visits was not anticipated;²⁸⁹ therefore, based on Commission staff's updated environmental justice analysis, we conclude that impacts on environmental justice communities associated with tourism (e.g., loss of revenue or jobs related to tourism) would not be significant.

126. Environmental justice communities in the study area would experience cumulative impacts on tourism from the LNG terminal project,²⁹⁰ as previously described, along with additional impacts from the projects within the cumulative geographic scope for tourism;²⁹¹ however, tourism impacts with the addition of the project would be less than significant. Given the availability of recreational opportunities further from the LNG terminal facility site, we further conclude that the overall cumulative tourism impacts on environmental justice communities would be less than significant.

(d) Socioeconomics

127. As stated in the final EIS, construction of the Rio Grande LNG Terminal would require an average monthly construction workforce of 2,950 workers (peak of 5,225 workers) over the seven year construction period; Rio Grande anticipates that a portion of these workers would be hired locally and the remainder would be non-local.²⁹² Rio Grande anticipates that 108 non-local workers would be employed at the LNG terminal during operation. This addition of 108 families would represent a negligible increase in the local population.²⁹³

128. During construction and operation, the temporary influx of workers/contractors into the area could increase the demand for community services, such as schools, police enforcement, and medical care, as well as housing.²⁹⁴ As stated in the final EIS, impacts on community services would be less than significant.²⁹⁵ In addition, an adequate

²⁸⁹ *Id.* at 4-218 to 4-219.

²⁹⁰ *Id.* at 4-467.

²⁹¹ Rio Grande May 20, 2022 Response to Commission staff's May 2, 2022 Environmental Information Request at tbl. 4.13.1-2.

²⁹² Final EIS at 4-207 to 4-208.

²⁹³ *Id.* at 4-227.

²⁹⁴ *Id.* at 4-226 to 227.

²⁹⁵ *Id.* at 4-227.

number of housing units are available in the affected area; therefore, impacts on the local housing market would be less than significant.²⁹⁶ Based on Commission staff's updated environmental justice analysis, we conclude that the socioeconomic impacts on environmental justice communities, due to an increased demand for community services and housing, would be less than significant.

129. Environmental justice communities in the study area would experience cumulative impacts on socioeconomic resources from the LNG terminal project, as previously described, along with additional impacts from the projects within the cumulative geographic scope for socioeconomic resources;²⁹⁷ however, socioeconomic impacts with the addition of the project would be less than significant.²⁹⁸ Given that community facilities would continue to operate adequately and the availability of housing units in the affected area, we further conclude that the cumulative socioeconomic impacts on environmental justice communities would be less than significant.

(e) Road Traffic

130. The final EIS finds that area residents may be affected by traffic delays during construction of the Rio Grande LNG Terminal.²⁹⁹ As all but seven block groups are considered environmental justice communities, these traffic impacts would fall on individuals from environmental justice communities. Up to 5,225 workers would be present onsite during construction of the LNG terminal; Rio Grande has estimated that 4,600 roundtrips (9,200 individual transits) would occur between the LNG terminal site and worker housing/parking areas.³⁰⁰ Vehicular traffic associated with these workers would result in considerable increases in local traffic, specifically along SH-48.³⁰¹ These impacts would most likely affect environmental justice communities near the LNG terminal site, such as Census Tract 142.02, Block Group 2 and Census Tract 127, Block Group 2, Census Tract 123.04, Block Group 4, and Census Tract 123.05, Block Group 1.

²⁹⁶ *Id.* at 4-225.

²⁹⁷ Rio Grande May 20, 2022 Response to Commission staff's May 2, 2022 Environmental Information Request at tbl. 4.13.1-2.

²⁹⁸ Final EIS at 4-463.

²⁹⁹ *Id.* at 4-237.

³⁰⁰ *Id.* at 4-228.

³⁰¹ *Id.*

Nevertheless, traffic levels would remain well within the capacity of the SH-48 roadway.³⁰²

131. Rio Grande's proposed use of the Port of Brownsville Temporary Storage/Parking Area (Census Tract 142.02, Block Group 2) and Port Isabel Temporary Storage Area (Census Tract 123.04, Block Group 4) would reduce traffic to the LNG terminal, and traffic levels would continue to remain well within the capacity of SH-48.³⁰³ In addition, Rio Grande has coordinated with the Texas Department of Transportation and agreed to implement the following mitigation measures: add an additional left-turn lane on westbound SH-48 at its intersections with SH-100 and at each LNG terminal driveway; optimize traffic signal timing at the intersection of SH-48 and SH-100; provide an acceleration and deceleration lane at each LNG terminal driveway intersection; provide temporary traffic signals at each LNG terminal driveway; create median openings across from LNG terminal driveway 1; create a temporary median opening on SH-48 across from any temporary offsite parking site, including the proposed Port of Brownsville temporary storage/parking area, and install a temporary traffic signal; schedule deliveries of construction materials to avoid the expected arrival and departure of the workforce; and stagger shifts to avoid all workers arriving and leaving at the same time, if congestion occurs at the LNG terminal driveways.³⁰⁴ Additionally, Rio Grande proposed to hire off-duty police officers to direct traffic during peak commuting hours and install roadway warning signs to notify travelers of construction activities.³⁰⁵ Based on Commission staff's updated environmental justice analysis, and given the maintenance of Level of Service C or better and with the implementation of mitigation measures, we conclude that the traffic impacts on environmental justice communities associated with construction of the LNG terminal would be less than significant.

132. Environmental justice communities in the study area would experience cumulative impacts associated with road traffic from the LNG terminal project, as previously described, along with additional impacts from the projects within the cumulative geographic scope for traffic;³⁰⁶ however, the impacts with the addition of the project

³⁰² *Id.* at 4-228.

³⁰³ Rio Grande August 22, 2022 Response to Commission staff's August 16, 2022 Environmental Information Request at 24.

³⁰⁴ *Id.* at 26.

³⁰⁵ *Id.*

³⁰⁶ Rio Grande May 20, 2022 Response to Commission staff's May 2, 2022 Environmental Information Request at tbl. 4.13.1-2.

would be less than significant.³⁰⁷ Based on Commission staff's updated environmental justice analysis, we conclude that the overall cumulative road traffic impacts on environmental justice communities would be less than significant.

(f) Marine Traffic

133. According to the final EIS, over the seven year construction period for the Rio Grande LNG Terminal, Rio Grande anticipates about 880 barge deliveries for the LNG terminal site, with marine deliveries at the highest level during the first five years of construction (approximately 15 times per month).³⁰⁸ Although these additional trips would represent an increase of about 25% in current barge traffic, they would not result in significant impacts on the channel, as the barges would not block small vessel traffic, the pilots and the Brownsville Harbor Master would manage commercial vessel traffic, and the additional vessels would not result in an exceedance of the channel's traffic capacity.³⁰⁹ Therefore, based on Commission staff's updated environmental justice analysis, we conclude that users of the channel from environmental justice communities would not be significantly impacted during construction.

134. According to the final EIS, permanent, increases in marine traffic within the Brownsville Ship Channel would occur as the addition of six LNG carriers per week would double the current volume of large vessel traffic within the Brownsville Ship Channel; however, the U.S. Coast Guard has determined that the waterway is suitable for project use.³¹⁰ Additionally, increased LNG vessel traffic during construction and operation could increase shoreline erosion and suspended sediment concentrations due to increased wave action.³¹¹ To minimize these impacts, Rio Grande proposes to stabilize the channel embankments and slope of the LNG terminal site along the Brownsville Ship Channel, the marine loading berths, and the turning basin using rip-rap.³¹² Rio Grande's mitigation of these impacts are required by the Commission's authorization. Based on Commission staff's updated environmental justice analysis, we conclude that recreational

³⁰⁷ Final EIS at 4-465.

³⁰⁸ *Id.* at 4-231.

³⁰⁹ *Id.*

³¹⁰ *Id.* at ES-11.

³¹¹ *Id.* at ES-5.

³¹² *Id.* at ES-5. Rip-rap is human-placed rock or other material used to protect shoreline structures against scour and water, wave, or ice erosion.

boaters and fishers, which include individuals from environmental justice communities, would not experience significant changes in marine traffic.

135. Environmental justice communities in the study area would experience cumulative impacts associated with marine traffic from the LNG terminal project, as previously described, along with additional impacts from the projects within the cumulative geographic scope for traffic;³¹³ however, the impacts with the addition of the project would be less than significant.³¹⁴ Based on Commission staff's updated environmental justice analysis, we conclude that the overall cumulative marine traffic impacts on environmental justice communities would be less than significant.

(g) Air Quality

136. Sierra Club and Texas RioGrande Legal Aid, Inc. comment that the Commission's new analysis continues to improperly analyze the impacts of the Rio Grande LNG Project on environmental justice communities. Specifically, the commenters argue that: (1) Rio Grande's modeling "arbitrarily applied" the same background concentration within each census block group within the 50 kilometer radius of the Rio Grande LNG Terminal fenceline; (2) Rio Grande improperly used the significant impact level to determine whether a project causes or contributes to exceedances of the NAAQS; (3) the emissions from the Rio Grande facility will have disproportionately high and adverse impacts on environmental justice communities; and (4) the Commission must explain why Rio Grande's maximum modeled concentration tables are "significantly less" than Texas LNG's modeled maximum concentrations, which "defies logic" given the "vast difference" in the quantity of emissions potentially emitted from the respective facilities.³¹⁵

137. Commission staff's January 6, 2023 Environmental Information Request asked Rio Grande and Texas LNG to collaborate to resolve any discrepancies in the modeling and ensure consistency in modeling methodologies used. Rio Grande and Texas LNG have now applied a consistent approach for determining the maximum concentrations attributable to the operation of the Rio Grande LNG Terminal and Texas LNG Terminal, and therefore, a consistent methodology to assess the cumulative air quality impact, including background concentrations from mobile ship emissions and all other sources

³¹³ Rio Grande May 20, 2022 Response to Commission staff's May 2, 2022 Environmental Information Request at tbl. 4.13.1-2.

³¹⁴ Final EIS at 4-466.

³¹⁵ Sierra Club et al. October 19, 2022 Comments.

within 50 kilometers, from simultaneous operation of both terminals.³¹⁶ These findings are detailed below.

(1) Construction Emissions

138. As discussed in the final EIS, construction of the Rio Grande LNG Terminal would impact air quality.³¹⁷ The construction emissions are anticipated from operation of construction equipment, operation of the onsite concrete batch plants, deliveries of supplies by barge and truck, worker commutes, and land disturbance. Fugitive dust emissions would include contributions from general site construction work (acreage impacted), earth-moving fugitive dust emissions (quantity of soil moved), and unpaved road travel (distance of travel and weight of vehicles). Fugitive dust would be produced primarily during the site preparation activities, when the site would be cleared of debris, leveled, and graded, including at proposed offsite facilities.³¹⁸

139. The final EIS determined that construction air emissions from the LNG terminal, when considered with background concentrations, combined with staged emissions impacts from commissioning, start-up, and operations of the LNG terminal, could result in an exceedance of the NAAQS in the LNG terminal vicinity for construction years when these emissions are taking place concurrently.³¹⁹ Emissions from construction tend to be variable, depending primarily on the number, type, horsepower, and manufacture date of equipment, as well as the phase of construction. Construction emissions typically have a greater nearby impact due to the lower height of the exhaust, and the ground level emission from dust (as PM_{2.5} and PM₁₀). Therefore, emissions from construction of the Rio Grande LNG Terminal would be highly localized and have the largest impact within

³¹⁶ Rio Grande January 27, 2023 Response to Commission staff's January 6, 2023 Environmental Information Request.

³¹⁷ We note that as part of the remand proceeding, Commission staff issued data requests to Rio Grande and Rio Bravo to provide updated construction and operational emission estimates for the Rio Grande LNG Terminal and Rio Bravo Pipeline Project (as amended), respectively. As indicated in these responses, the updates corrected "a mathematical error in a previous calculation." Although these updates have changed the estimated emissions for both projects, we confirm that Kleberg, Jim Wells, Kenedy, Willacy, and Cameron counties, within which the terminal and pipeline construction would occur, remain in attainment for all NAAQS pollutants. Therefore, as the final EIS and Amendment Project EA previously concluded, general conformity requirements do not apply to emissions from the projects' construction.

³¹⁸ Final EIS at 4-256 & 4-257.

³¹⁹ *Id.* at 4-269.

a short radius around the LNG terminal construction footprint, but would disperse at further distances. Because pollutant concentrations decrease with distance, the dispersal of Rio Grande's construction emissions at the distance of the nearest residences (approximately 2.2 miles away) should not result in adverse impacts on air quality. But construction emissions could be elevated at recreational areas near the LNG terminal site, such as the Laguna Atascosa National Wildlife Refuge, which has a border 211 feet north of the LNG terminal.³²⁰

140. Rio Grande will implement the following measures to minimize construction combustion emissions: use bus transportation where feasible for worker commutes, limit engine idling of heavy equipment to less than five minutes to the extent practicable, use recent models of construction equipment, and conduct regular inspections and emissions testing of construction vehicles. Fugitive dust emissions will be minimized by Rio Grande through implementation of the Fugitive Dust Control Plan developed for the LNG terminal.³²¹ Nevertheless, these fugitive dust emissions may still have an adverse impact and may add to evaluated levels of PM_{2.5} and PM₁₀ during periods where terminal construction, commissioning, and operation are concurrent. Additionally, commissioning activities are not steady-state operations and they can have an increased emission intensity during start up.

141. Rio Grande plans to commission and begin operations on the first completed liquefaction facilities while it continues to construct the remaining facilities; the simultaneous construction, commissioning and start-up, and operations at the project will result in periods of overlapping construction and operational emissions. As a result, Commission staff cannot exclude the possibility of short-term ambient emission concentrations of PM_{2.5}, PM₁₀, and NO₂ at levels above the NAAQS at nearby public recreational areas, such as the Laguna Atascosa National Wildlife Refuge. As such, to prevent such occurrences, we are requiring, in Environmental Condition 144 in Appendix A of this order, that Rio Grande take action to ensure that concurrent emissions during construction, commissioning and start-up, and operation of terminal facilities would not exceed the NAAQS.

142. Prior to commissioning, Rio Grande shall prepare and file a Project Ambient Air Quality Mitigation and Monitoring Plan for reducing the air quality impacts of overlapping construction, commissioning, and terminal operations. Such plan could include measures such as revising construction and commissioning schedules to reduce impacts. Rio Grande shall also include how it will monitor 1-hour NO₂, 24-hour PM₁₀, and 24-hour PM_{2.5} during this period. The plan must describe the site selection process

³²⁰ *Id.* at 4-98.

³²¹ *Id.* at 4-258 & 4-271.

for installing air quality monitors, and include procedures for data management and reporting. This monitoring will ensure that the mitigation measures implemented are effective in keeping emissions below the NAAQS, as specified in 40 C.F.R. pt. 50 (2022).

143. Based on Commission staff's updated environmental justice analysis, and the addition of Environmental Condition 144 in Appendix A of this order, we conclude that air quality impacts on environmental justice communities during construction of the Rio Grande LNG Terminal would be less than significant.

(2) Operational Emissions

144. The final EIS concluded that modeled concentrations from operation of the Rio Grande LNG Terminal including mobile sources and all six originally proposed liquefaction trains, would not cause or significantly contribute to an exceedance of the NAAQS.³²²

145. On August 13, 2020, the Commission-approved Rio Grande LNG Terminal design modifications including a reduction in the number of liquefaction trains from six to five trains.³²³ This modification resulted in a reduction in potential emission rates from the operation of the Rio Grande LNG Terminal, which is discussed in more detail below.

(3) Cumulative Construction and Operation Emissions

146. Sierra Club and other commenters expressed concerns about general adverse health impacts (including asthma) from air emissions from the Rio Grande LNG Terminal and Texas LNG Terminal, including impacts on Vecinos para el Bienestar de la Comunidad Costera. Numerous commenters state that if both terminals were built, each would release toxic pollution that causes cancer, including volatile organic compounds, and particulate matter, which makes respiratory illnesses worse in South Texas communities that don't have access to medical care. An updated refined air quality analysis for the cumulative impact of emissions from the Rio Grande LNG Terminal and Texas LNG Terminal is discussed above.

147. The greatest potential for cumulative construction emissions impacts between the Rio Grande LNG and Texas LNG Terminals would be during construction years 2 and 3. Simultaneous construction of the Rio Grande LNG and Texas LNG Terminals could result in a temporary, moderate to major increase in emissions of criteria pollutants in the

³²² Final EIS at 4-266.

³²³ Commission staff August 13, 2020 Approval of Design Change Proposals.

immediate vicinity of the LNG terminal sites.³²⁴ In addition, transport of construction materials associated with the Rio Grande LNG and Texas LNG Terminals would cumulatively add to regional emissions.³²⁵ Both Texas LNG and Rio Grande would implement similar mitigation measures to minimize construction impacts. As noted above, construction emissions are localized, and impacts would be greatest in the immediate vicinity of the LNG terminal sites. During the time period when construction and operational activities at both facilities are taking place concurrently, there may be adverse impacts on air quality.³²⁶ Because pollutant concentrations would decrease with distance from the project site, concurrent emissions would be unlikely to adversely impact air quality in residential areas, which are located 2.2 miles away or further.³²⁷ As previously described, although residential areas would not likely experience adverse air quality impacts, individuals from environmental justice communities fishing or otherwise recreating near the terminal may experience adverse air quality impacts. As discussed above, we are requiring Rio Grande to prepare a Project Ambient Air Quality Monitoring and Mitigation Plan as Environmental Condition 144 in Appendix A of this Order, and a similar plan for Texas LNG; thus, we conclude that cumulative construction air quality impacts on environmental justice communities would be less than significant.

148. In order to assess the cumulative impact of air emissions from the LNG terminal on the air quality in environmental justice communities, Commission staff requested that Rio Grande provide a cumulative air model of the emissions that accounts for the Amendment Project and the elimination of one of the originally proposed six LNG trains, and emissions for existing and currently proposed sources within 50 kilometers of the LNG terminal, including the Texas LNG Terminal. The model, which used the current version of EPA's American Meteorological Society/EPA Regulatory Model (AERMOD), provided worst-case concentration scenarios that were then compared to the NAAQS. The cumulative model included all emissions from the LNG terminal, including mobile ship emissions (LNG carrier, tugs, escort vessels), relevant regional monitoring ambient background data, and existing and proposed regional industrial major sources within 50 kilometers of the LNG terminal's fenceline boundary. The model also included emissions from the planned Texas LNG Terminal (Docket No. CP16-116-000) and its associated vessel emissions. The background inventory data were obtained from the Texas Commission on Environmental Quality.

³²⁴ Final EIS at 4-473. We note that since issuance of the final EIS, the proposed Annova LNG Project, included in the cumulative impact analysis, is no longer proposed.

³²⁵ *Id.*

³²⁶ *Id.* at 4-269.

³²⁷ *Id.*

149. Table 1 shows the results from the cumulative model for the worst-case scenario (hoteling scenario which includes combined operation of LNG terminal, LNG vessel, and tugboat sources). The highest predicted total concentrations for carbon monoxide (CO), nitrogen dioxide (NO₂), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns (PM_{2.5}), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM₁₀), and sulfur dioxide (SO₂) were found to be below the NAAQS at all locations within 50 kilometers of the LNG terminal. In addition, the maximum radius of impact for the 1-hour NO₂ averaging period was found to be 12.8 kilometers. The Rio Grande LNG Terminal would add to existing background concentrations of criteria air pollutants within the regional airshed and would contribute to cumulative impacts. Nevertheless, the total concentration of background plus modeled emissions from cumulative sources within this 50-kilometer radius, including both the Texas LNG and Rio Grande LNG Terminals, would remain under applicable NAAQS thresholds, which are meant to protect sensitive populations. The Rio Grande LNG Terminal would not result in significant impacts on air quality in the region, nor would the Rio Grande LNG Terminal by itself cause an exceedance of any NAAQS.

Table 1 Results of Cumulative Impact Air Modeling Analysis							
Pollutant		Averaging Period	micrograms per cubic meter (µg/m ³)				
		Facility Contribution	Offsite Contribution	Model (Facility + Offsite) Concentration	Background Concentration	Total Maximum Model Design Concentration within any Census Block Group	NAAQS
CO	1-hour	0.0213	4,304	4,304	3,779	8,083	40,000
	8-hour	0.018	2,792	2,792	2,176	4,968	10,000
NO ₂	1-hour	0.002	106.62	106.62	47.0	153.62	188
	Annual	0.077	2.58	2.66	3.8	6.46	100
PM ₁₀	24-hour	0.00091	47.59	47.59	60.0	109.59	150
PM _{2.5}	24-hour	0.00054	6.33	6.33	28.0	34.33	35
	Annual	0.0071	2.16	2.17	9.7	11.87	12
SO ₂	1-hour	0.0011	102.63	102.63	13.1	115.73	196
	3-hour	0.0011	87.98	87.99	13.1	101.09	1,300

150. To account for the Rio Grande LNG Terminal's current design, Rio Grande performed ozone modeling to update the results presented in the final EIS.³²⁸ Rio Grande calculated secondary impacts using updated estimated ozone emissions from the

³²⁸ Rio Grande November 2, 2022 Supplemental Information Response to Commission staff's August 16, 2022 Environmental Information Request.

Rio Grande LNG Terminal following EPA's current Modeled Emission Rates for Precursors guidance and associated databases and estimated the ozone concentration associated with the operation of the Rio Grande LNG Terminal to be 1.62 parts per billion (ppb). Following Texas Commission on Environmental Quality guidance, this estimated impact was added to the existing background ozone concentration of 57 ppb, measured at the Harlingen Teege air monitoring station for the years 2018, 2019, and 2020, which is representative of the Rio Grande LNG Terminal area.³²⁹ When the estimated project impact of 1.62 ppb is added to the existing ozone concentrations, the cumulative impact is 58.6 ppb, which remains below the 8-hour ozone NAAQS of 70 ppb.

151. Both the Texas LNG and Rio Grande LNG Terminals would be in compliance with the NAAQS during operations³³⁰ and NAAQS are designated to protect sensitive populations.³³¹ The operation of the LNG terminal projects when combined with the other projects within the cumulative geographic scope for air quality³³² would not cause or contribute to a potential exceedance of the NAAQS on a regional or localized basis,³³³

³²⁹ *Id.*

³³⁰ Air quality modeling of criteria pollutants for both LNG terminals reviewed impacts on a regional and local scale and did not identify any areas of NAAQS thresholds exceedance that would be attributable to the LNG terminals. *See* Rio Grande January 27, 2023 Response to Commission staff's January 6, 2023 Environmental Information Request at Rio Grande LNG Project Air Dispersion Modeling Report; Texas LNG January 30, 2023 Response to Commission staff's January 6, 2023 Environmental Information Request at tbls. 9-5 & 9-6.

³³¹ The combustion of natural gas produces the criteria pollutants regulated by NAAQS as well as volatile organic compounds including hazardous air pollutant chemicals known to cause health impacts. Final EIS at 4-243. The Rio Grande LNG Terminal is a major source of hazardous air pollutants and must comply with the Clean Air Act National Emission Standards for Hazardous Air Pollutants for stationary sources at the LNG terminal. The Texas LNG terminal is a minor source of hazardous air pollutants and is required to comply with certain general provisions for minor area sources under the Clean Air Act.

³³² Rio Grande May 20, 2022 Response to Commission staff's May 2, 2022 Environmental Information Request at tbl. 4.13.1-2.

³³³ *See* Rio Grande January 27, 2023 Response to Commission staff's January 6, 2023 Environmental Information Request at Rio Grande LNG Project Air Dispersion Modeling Report; Texas LNG January 30, 2023 Response to Commission staff's January 6, 2023 Environmental Information Request at tbls. 9-5 & 9-6.

and therefore would not result in significant adverse air quality impacts on environmental justice communities in the region.

(h) Noise

152. As stated in the final EIS, noise levels above ambient conditions, attributable to construction activities, would vary over time and would depend upon the nature of the construction activity, the number and type of equipment operating, and the distance between sources and receptors.³³⁴ The closest noise sensitive areas (NSA) to the Rio Grande LNG Terminal located within environmental justice communities are: NSA 1, a residence, about 4.3 miles southeast of the center of the LNG terminal site (Census Tract 127 Block Group 2); NSA 2, Port Isabel High School, which is adjacent to the Laguna Heights residential area, located about 3.7 miles northeast of the center of the LNG terminal site (Census Tract 123.04, Block Group 4); NSA 3, residences in Port Isabel, about 3.7 miles northeast of the LNG terminal site (Census Tract 123.04 Block Group 4); and NSA 4, residences on Long Island, about 3.8 miles east of the center of the LNG terminal site (Census Tract 123.05 Block Group 1).³³⁵

153. Based upon the construction noise estimates provided by Rio Grande, the maximum noise levels generated by construction activities would increase the existing daytime noise at the nearest NSAs; however, with the exception of construction at NSA 2, combined ambient and construction sound levels would not exceed a day-night sound level (L_{dn}) threshold of 55 A-weighted decibels (dBA).³³⁶ The human ear's threshold of perception for noise change is considered to be 3 dBA; 6 dBA is clearly noticeable to the human ear; and 10 dBA is perceived as a doubling of noise.³³⁷ The increased sound from construction at NSA 2 would be less than 3 dB, and therefore would not be perceptible. The final EIS included a recommendation (which was included as a mandatory condition of the Authorization Order) to address the potential for pile-driving activities to exceed the 55 dBA L_{dn} threshold at the NSAs.³³⁸ Nevertheless, due to the predicted 0.2 to 5.4 dB increases estimated during construction, the final EIS

³³⁴ Final EIS at 4-282.

³³⁵ *Id.* at 4-197.

³³⁶ *Id.* at 4-292.

³³⁷ See Bies and Hansen, *Engineering Noise Control: Theory and Practice* at tbl. 2.1 (1988), <https://www.semanticscholar.org/paper/ENGINEERING-NOISE-CONTROL%3A-Theory-and-Practice-Bies-Hansen/23a7741e61d5b42d7da770b857054a50f1380648> (last visited March 2023).

³³⁸ Final EIS at 4-292.

concluded that impacts on nearby residents within environmental justice communities would be less than significant during construction of the LNG terminal.³³⁹

154. Operational noise associated with the LNG terminal would be persistent and would increase noise levels over ambient between 0.1 and 0.4 dB at the closest NSAs.³⁴⁰ Based on these estimates, the noise generated by the operation of the LNG terminal is not likely to exceed the 3 dBA threshold for human perception of noise change at nearby NSAs within environmental justice communities. In addition, as recommended in the final EIS,³⁴¹ Environmental Conditions 35, 36, and 37 in the Authorization Order require Rio Grande to meet sound level requirements. Based on Commission staff's updated environmental justice analysis, Rio Grande's estimate that operation of the LNG terminal will not result in a perceptible increase in sound levels at the nearest NSAs, and given the requirements in the Authorization Order for measurement of operational sound levels, we conclude that the project would not result in significant noise impacts on local residents and the surrounding communities,³⁴² including environmental justice populations.

155. Environmental justice communities in the study area would experience cumulative impacts associated with noise from the Rio Grande LNG Terminal, as previously described, along with additional impacts from the projects within the cumulative geographic scope for noise, particularly cumulative impacts related to construction of the Texas LNG Terminal.³⁴³ The construction and operation of the Rio Grande LNG Terminal and Texas LNG Terminal would not result in significant noise impacts on local residents and the surrounding communities, including environmental justice populations. As stated in the final EIS regarding nighttime construction noise, the only 24-hour construction proposed at the Rio Grande LNG Terminal would be dredging, and concluded that the estimated sound level from dredging associated with the Rio Grande LNG Terminal at the nearest NSAs would be below existing ambient sound levels, and noise associated with dredging activities is not expected to be perceptible.³⁴⁴ The final

³³⁹ *Id.*

³⁴⁰ *Id.* at 4-293.

³⁴¹ *Id.* at 5-31 to 5-32.

³⁴² *Id.* at 4-296.

³⁴³ Rio Grande May 20, 2022 Response to Commission staff's May 2, 2022 Environmental Information Request at tbl. 4.13.1-2.

³⁴⁴ We note that the final EIS found that the Annova LNG Project's nighttime pile-driving would result in significantly higher noise levels resulting in significant cumulative noise impacts if the Annova LNG Project was constructed concurrent with the Rio Grande LNG Terminal's nighttime dredging activities. Nevertheless, as noted above,

EIS determined that the predicted sound level impacts for simultaneous operation of all three LNG projects (Rio Grande LNG, Texas LNG, and Annova LNG) are much lower than the construction impacts, with potential sound level increases between 0.3 and 1.5 dBA L_{dn} at NSAs, resulting in a negligible to minor cumulative impact. Based on Commission staff's updated environmental justice analysis, we conclude that the overall cumulative noise impacts on environmental justice communities would be less than significant.

(i) **Safety**

156. The Energy Policy Act of 2005 amended the NGA to require Emergency Response Plans and Cost Sharing Plans to be developed by the LNG terminal operator. During an incident, response decisions would be made by local emergency responders according to conditions as they exist at that time at the facility and in offsite areas. While the company may provide advice regarding hazards and potential impacts to the public, the emergency responders direct all response tactics, evacuation, sheltering in place, and public notification through an Incident Command System.

157. In order to further mitigate potential offsite risks,³⁴⁵ Environmental Conditions 53 and 54 of the Authorization Order require Rio Grande to prepare an Emergency Response Plan and Cost Sharing Plan,³⁴⁶ to be approved by Commission staff before Rio Grande may receive final approval to begin construction.³⁴⁷ Rio Grande's Emergency Response

the authorization for the Annova LNG Project has been vacated, and the Rio Grande LNG Terminal's contribution to cumulative nighttime construction noise would be negligible.

³⁴⁵ The Emergency Response Plans are considered the last layer of protection in a series of layers of protection evaluated by Commission staff to mitigate potential offsite risks. An evaluation of all layers of protection and recommendations to enhance the effectiveness and reliability of those safety layers of protection are described in the original final EIS. These recommendations were adopted as conditions in the Authorization Order.

³⁴⁶ Rio Grande filed an initial Emergency Response Plan and Cost Sharing Plan on November 25, 2019, and responses to Commission staff's data requests on January 22, 2020, January 27, 2020, and February 14, 2020. In addition, Rio Grande filed updates to the Emergency Response Plan on February 20, 2021, November 19, 2021, and May 20, 2022. These updates included administrative updates, emergency contact updates, language and figure revisions that incorporate terminal layout updates, cost-sharing plan development updates, and public education and notification materials updates.

³⁴⁷ See 15 U.S.C. § 717b-1(e).

Plan is required to be developed in coordination with U.S. Coast Guard, state, county, and local emergency planning groups; fire departments; and state and local law enforcement. This ensures that Rio Grande works with the local emergency providers to identify resource needs based on the hazards that could be present due to the facility. The result is pre-incident planning to establish procedures, training, and capabilities that would be available to the Incident Commander as they decide how best to address a specific incident.

158. In response to Commission staff's data requests on potential safety impacts to environmental justice communities, Rio Grande evaluated potential impacts from incidents identified along the LNG marine vessel transit route and at the LNG terminal,³⁴⁸ including potential impacts to individuals with access and functional needs as defined in the National Fire Protection Association (NFPA) 1600, Standard on Continuity, Emergency, and Crisis Management³⁴⁹ and NFPA 1616, Standard on Mass Evacuation, Sheltering, and Re-Entry Programs.³⁵⁰ Separately, Commission staff performed an independent analysis³⁵¹ of potential safety impacts on environmental justice communities using conservative, worst-case distances in the modeling assumptions.³⁵² We adopt the proposed modified conditions in Appendix A as conditions of this order, which are summarized below.

³⁴⁸ Rio Grande August 22, 2022 Response to Commission staff's August 16, 2022 Environmental Information Request.

³⁴⁹ NFPA, *NFPA 1600: Standard on Continuity, Emergency, and Crisis Management*, <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1600> (last visited Jan. 2023).

³⁵⁰ NFPA, *NFPA 1616: Standard on Mass Evacuation, Sheltering, and Re-Entry Programs*, <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1616> (last visited Jan. 2023).

³⁵¹ See app. C for additional discussion and details on Commission staff's environmental justice safety analysis.

³⁵² The block groups located within environmental justice communities that exceed the thresholds for minority and low income would include Census Tract 142.02 Block Group 2, Census Tract 127 Block Group 2, Census Tract 123.04 Block Group 2, Census Tract 123.04 Block Group 4 (based on the minority and low-income thresholds); Census Tract 123.04 Block Group 3 (based on the minority threshold); and Census Tract 123.04 Block Group 1 (based on low-income threshold). Minority and low-income population percentages for these Census Tract Block Groups are provided in tbl. C.1 of Appendix C.

159. In order to ensure Rio Grande's Emergency Response Plan incorporates any special considerations and pre-incident planning for infrastructure and public with access and functional needs, including environmental justice communities, and, at a minimum, be consistent with the recognized and generally accepted good engineering practices for evacuating and sheltering in place,³⁵³ we modify Environmental Conditions 53 and 54 from the Authorization Order in Appendix A of this order. These modified conditions specify that Rio Grande's Emergency Response Plan include public education material, including for environmental justice communities, that identifies potential hazards and impacts, steps for notification, proposed evacuation, routes, and shelter in place locations. The plan must also provide for first responder training, emergency command centers and equipment, and public communication methods and devices.³⁵⁴ We also require in Appendix A of this order that Rio Grande periodically disseminate public education materials and that they be made available in English and Spanish, consistent with Rio Grande's proposal.³⁵⁵

160. We also clarify our expectation that certain Emergency Response Plan information be provided as public information. While the Commission has long required that certain plan contents be subject to public disclosure, this has been previously interpreted to mean the plan could be filed requesting privileged or CEII treatment and that the public could access this information through Freedom of Information Act procedures. We clarify the intent is for project sponsors to file certain Emergency Response Plan information as public so that surrounding communities are informed about the possible steps that an Incident Commander may require regarding notification, evacuation, and sheltering in place.

³⁵³ See app. C (citing NFPA 1600, NFPA 1616, NFPA 1620, NFPA 470, and NFPA 475).

³⁵⁴ A draft pamphlet was included in Rio Grande's May 20, 2022 filing and provides information on LNG hazards, response planning, communication methods, evacuation routes, and shelter/muster locations should an evacuation be necessary. In compliance with the Authorization Order, Rio Grande continues to notify Commission staff of all planning meetings in advance and to report progress on the development of the Emergency Response Plan and Cost Sharing Plan at 3-month intervals.

³⁵⁵ Rio Grande's May 20, 2022 and September 15, 2022 responses to Commission staff data requests state that Rio Grande continues to develop and finalize its community outreach and emergency response pamphlet and once complete, the final pamphlet would be available to the public in English and Spanish.

(j) Visual Impacts

161. As stated in the final EIS, impacts on visual resources may occur during construction of the Rio Grande LNG Terminal when large equipment, excavation activities, spoil piles, and construction materials are visible to local residents and visitors, including individuals from environmental justice communities,³⁵⁶ particularly the communities located nearby in Census Tract 142.02, Block Group 2 and Census Tract 127, Block Group 2, Census Tract 123.04, Block Group 4, and Census Tract 123.05, Block Group 1.

162. Impact on visual resources would also occur during operation to the extent that facilities or portions of facilities and their lighting are visible to residents and visitors.³⁵⁷ The existing viewshed of the proposed LNG terminal site includes predominately open land with scrub-shrub vegetation with the Brownsville Ship Channel and SH-48 framing the southern and northern site boundaries.³⁵⁸ The Port of Brownsville and the Brownsville Ship Channel support the movement of domestic and foreign products, which included about 7.6 million metric tons of cargo with over 1,050 vessel-calls in 2014.³⁵⁹ As such, the movement of these vessels contributes to the characterization of the existing viewshed.³⁶⁰ Visual receptors in the vicinity of the LNG terminal site would include individuals from environmental justice communities, particularly the communities located nearby in Census Tract 142.02, Block Group 2 and Census Tract 127, Block Group 2, Census Tract 123.04, Block Group 4, and Census Tract 123.05, Block Group 1, including recreational and commercial users of the Brownsville Ship Channel, motorists on SH-48, and visitors to the Laguna Atascosa National Wildlife Refuge, and other nearby recreation areas.³⁶¹ The closest residential areas to the LNG terminal within an environmental justice community are about 2.2 miles away from the Rio Grande LNG Terminal lease boundary. Given the LNG terminal site's proximity to residential areas, it would be possible to see the LNG terminal from some vantage points in Port Isabel and Laguna Heights, in particular elevated sites such as the Port Isabel Lighthouse; however, the distance to the LNG terminal site limits its

³⁵⁶ Final EIS at 4-198.

³⁵⁷ *Id.*

³⁵⁸ *Id.*

³⁵⁹ *Id.*

³⁶⁰ *Id.*

³⁶¹ *Id.* at 4-198 to 4-199.

visibility and as such it would not be a prominent feature in the viewshed for these residences.³⁶²

163. Rio Grande has developed mitigation measures that would reduce day and nighttime visibility of the aboveground facilities at the LNG terminal site, including the selection of grey tank coloring, horticultural plantings, and the construction of a levee that would obstruct most construction activities and low-to-ground operational facilities from view.³⁶³ Several light reduction techniques would also be implemented by Rio Grande including limiting the amount of outdoor lighting installed, dimming lights at night, and directing lights downward.³⁶⁴ Based on Commission staff's updated environmental justice analysis, we continue to conclude that the LNG terminal project would not result in a significant impact on visual resources for residents and visitors in the immediate vicinity of the proposed LNG terminal site,³⁶⁵ which would include individuals from environmental justice communities. With regard to cumulative visual impacts, as stated in the final EIS, the physical facilities of the Rio Grande LNG Terminal would result in permanent and moderate changes in the existing viewshed for people when they are near the terminal.³⁶⁶ This includes individuals from environmental justice communities recreating near the Rio Grande LNG Terminal (e.g., Laguna Atascosa National Wildlife Refuges) as well as passersby traveling on SH-48. The final EIS concluded because the Texas LNG Terminal has the potential to result in significant visual impacts, that cumulative impacts on visual resources from the Rio Grande LNG Terminal, when considered with other projects, would be potentially significant.³⁶⁷ We have taken into account Commission staff's updated environmental justice analysis, and we continue to conclude, cumulative impacts on visual resources, when considered with other projects within the cumulative geographic scope for visual resources, would be potentially significant.³⁶⁸

³⁶² Final EIS at 4-199.

³⁶³ *Id.*

³⁶⁴ *Id.* at 4-199 to 4-200.

³⁶⁵ *Id.* at 4-202.

³⁶⁶ *Id.* at 4-459.

³⁶⁷ *Id.* at 4-459.

³⁶⁸ We continue to reach this conclusion notwithstanding the fact that the cancelled Annova LNG project is no longer included in the cumulative analysis.

b. Rio Bravo Pipeline Project

i. Compressor Station, Meter Stations, and Contractor Yards

164. Commission staff's updated analysis of impacts associated with Compressor Station 1, the meter stations and the contractor yards on the identified environmental justice communities addresses visual resources, air quality, and noise. Socioeconomic and traffic impacts associated with the meter stations and the contractor yards and pipeline are addressed in sections ii (e) and (f) below. No wetland, surface water, or recreational fishing impacts are associated with the meter stations and contractor yards. Cumulative impacts are discussed in section ii below.

(a) Aboveground Facility Impact Assessment Areas

(1) Compressor Station

165. For the Rio Bravo Pipeline Project, Commission staff established a 50-kilometer radius around Compressor Station 1, located in Kleberg County, as the appropriate unit of geographic analysis for assessing project impacts on environmental justice communities. A 50-kilometer radius for Compressor Station 1 represents a conservative estimate of the furthest extent of likely construction and operational impacts on environmental justice communities, the furthest of which, as described below, would be associated with noise, estimated to not exceed one mile,³⁶⁹ and air quality, for which the furthest radius of impact for air quality is approximately 0.6 mile (1kilometer for this facility).³⁷⁰ Air

³⁶⁹ The Guidance Manual for Environmental Report preparation requires an acoustical analysis identifying noise impacts from each new or modified compressor station within 1 mile of the compressor station. Commission Guidance Manual for Environmental Report Preparation for Applications Filed Under the Natural Gas Act at 4-132. The nearest noise sensitive area, a hunting lodge, is 5.5 miles to the west of Compressor Station 1. Amendment Application, Volume I at app. 2.B (*Rio Bravo Compressor Station, Kleberg County, Texas: Results of an Updated Acoustical Analysis of the new Natural Gas Compressor Station associated with the Amended Rio Bravo Pipeline Project*). Compressor Station's noise contribution at one mile would be approximately 42 A-weighted decibels (dBA), and would remain in compliance with the Commission's day-night sound level requirement of 55 dBA. Authorization Order, 169 FERC ¶ 61,131 at Env't Condition No. 38.

³⁷⁰ Amendment Application, Volume I at 17 (Operation Impacts). In addition to emissions levels, factors that determine the radius of impact for a particular facility

emissions may further disperse outside this radius of impact; however, beyond the radius of impact, air emissions from Compressor Station 1³⁷¹ would not contribute to adverse ambient air quality impacts and would be below the NAAQS.³⁷² Commission staff identified 87 environmental justice community block groups within 50 kilometers of Compressor Station 1. Of those 87 environmental justice community block groups, 40 have a minority population that either exceeds 50% or is meaningfully greater than their respective counties, one has a low-income population that exceeds the threshold, and 46 have both a minority population and a low-income population that exceed the respective thresholds.³⁷³

(2) Meter Stations

166. For the three meter stations located in Kleberg County (Meter Stations HS1, HS2, and HS3), and Meter Station HS4 located in Jim Wells County, a one-mile radius around the meter station sites is sufficient given construction and operational impacts on environmental justice communities. Commission staff determined that a one-mile radius for the meter stations represents a conservative estimate of the furthest extent of impacts on environmental justice communities, the furthest of which would be associated with noise impacts.³⁷⁴ For Meter Stations HS1 and HS2 in Kleberg County, Commission staff did not identify environmental justice communities within the one-mile radius of analysis. Meter Station HS3 (Kleberg County) is not located within an environmental justice block group; Commission staff identified one environmental justice community block group within a one-mile radius of the site (Census Tract 9502.02, Block Group 2). Meter Station HS4, in Jim Wells County, is located within an environmental justice community (Census Tract 9502.02, Block Group 2). The one block group identified

include the surrounding topography, atmospheric patterns, stack height, and the temperature and velocity of the flue gas.

³⁷¹ The modified Compressor Station 1 would consist of four 43,000-hp natural gas-driven turbines, two 55,000-hp electric motor-driven compressor units, one natural gas-driven fuel heater, and two natural gas-fired backup generators, and other ancillary facilities.

³⁷² Enbridge Rio Bravo Pipeline Company, LLC Environmental Report, Volume I, Section 2.1.5.2.3 Operational Impacts, *Revised FEIS Table 4.11.1-17 Summary of Air Dispersion Modeling at Compressor Station 1 and Comparison to NAAQS*.

³⁷³ See app. B at tbl. 2.

³⁷⁴ Final EIS at 4-301.

within the radius of analysis for Meter Station HS4 has a minority population that either exceeds 50% or is meaningfully greater than Jim Wells County.³⁷⁵

(3) Contractor Yards

167. For the three contractor yards associated with the Rio Bravo Pipeline Project, Commission staff determined that a 1-mile radius around the project sites is sufficient given construction and operational impacts on environmental justice communities. A one-mile radius for the contractor yards represents a conservative estimate of the furthest extent of impacts on environmental justice communities, the furthest of which would be associated with traffic impacts.

168. Contractor Yards 1, 2, and 3 are proposed for use by Rio Bravo during construction only and are located within environmental justice communities (Census Tract 9503, Block Group 1, Census Tract 9501, Block Group 1, and Census Tract 144.01, Block Group 1, respectively). For the Contractor Yard 1, Commission staff identified four environmental justice community block groups within a one-mile radius of the site (two based on both the minority threshold and 2 based on both the low income and minority thresholds). For the Contractor Yard 2, Commission staff identified one environmental justice community block groups within a one-mile radius of the site (based on both the low income and minority threshold). For the Contractor Yard 3, Commission staff identified seven environmental justice community block groups within a one-mile radius of the site (five based on both the minority threshold and 2 based on both the low income and minority thresholds).

(b) Visual Resources

169. Compressor Station 1 would not be constructed within an environmental justice community; however, environmental justice communities are located within 50 kilometers of the facility. Compressor Station 1 would not be visible from the closest NSA within an environmental justice community, approximately 5.5 miles away. Therefore, no visual impacts on environmental justice communities are anticipated.

170. As previously mentioned, Rio Bravo will construct and operate two meter stations within environmental justice communities. One of the meter stations will be a standalone facility along the pipeline Header System in Jim Wells County, Texas. The other will be a gas custody transfer meter station collocated at the Rio Grande LNG Terminal in Cameron County, Texas. The meter station collocated at the Rio Grande LNG Terminal will be part of the terminal viewshed and not a predominant feature on the LNG terminal site. The meter station along the pipeline Header System in Jim Wells County will be constructed on large parcels of land consisting mostly of open land and agricultural land.

³⁷⁵ See app. B at tbl. 3.

This land also contains numerous easements for oil and gas pipelines. Therefore, the existing viewshed is characterized, in part, by existing infrastructure associated with these systems.

171. Rio Bravo's three construction contractor yards are located in environmental justice communities, and the closest residences to Contractor Yard 1 (189 feet north) may experience a change in viewshed during construction, which would be temporary lasting the duration of construction. No visual impacts are anticipated for Contractor Yards 2 and 3 (2,065 feet south and 3,044 feet south, respectively) due to the distance from those residences.

(c) Air Quality

172. Construction of Compressor Station 1, Meter Stations HS3 and HS4, and use of the three contractor yards would result in a temporary increase in emissions due to the combustion of fuel in vehicles and equipment, and dust generated from general construction activities. Construction emissions associated with Compressor Station 1 and meter station construction would be minimal and localized to the construction area. Therefore, based on Commission staff's updated environmental justice analysis, we conclude that environmental justice communities would not experience significant air quality impacts during construction of the pipeline facilities.

173. Operations emissions associated with Compressor Station 1 would not cause an exceedance of the NAAQS. In addition, the radius of impact for Compressor Station 1 is approximately 0.6 mile (1 kilometer) for this facility and would not contribute to adverse ambient air quality in any environmental justice communities. Outside this radius, Commission staff determined that the project would not contribute to adverse ambient air quality impacts. Therefore, based on Commission staff's updated environmental justice analysis, we conclude that operation emissions associated with Compressor Station 1 would not result in a significant impact on air quality in environmental justice communities.

174. Operations emissions associated with Meter Stations HS3 and HS4 would be due to fugitive emissions and natural gas venting and would result in minimal emissions of criteria pollutants. Operations emissions associated with these facilities would not cause an exceedance of the NAAQS. The three contractor yards would not be used during operation. Therefore, based on Commission staff's updated environmental justice analysis, we conclude that operation emissions associated with Meter Stations HS3 and HS4 would not result in a significant impact on air quality in environmental justice communities.

175. Operation of Rio Bravo project aboveground facilities would not cause a NAAQS exceedance, and concurrent operations associated with other projects within the

geographic scope for air quality are not expected to result in a NAAQS exceedance.³⁷⁶ Environmental justice communities in the study area would experience cumulative impacts on air quality due to impacts previously discussed along with additional impacts from the projects within the cumulative geographic scope for air quality; however, impacts with the addition of the project would be less than significant.³⁷⁷ Therefore, overall cumulative air quality impacts on environmental justice communities would be less than significant.

(d) Noise

176. There are no residences or other NSAs within 1 mile of the meter station within Jim Wells County or Compressor Station 1. Therefore, based on Commission staff's updated environmental justice analysis, we conclude that no construction or operational noise impacts on residences within environmental justice communities would be anticipated from these facilities, as any noise impacts would not likely be perceptible at these distances.³⁷⁸

177. Sound levels resulting from construction equipment at the contractor yards would vary over time and would depend upon the number and types of equipment operating, the level of operation, and the distance between sources and receptors.³⁷⁹ Construction equipment would be operated on an as-needed basis, and environmental justice communities near the construction contractor yard areas may experience an increase in perceptible noise, but the effect would be temporary and local.³⁸⁰ The closest residences to Contractor Yard 1 (189 feet north) may experience noise during construction, which would be temporary lasting the duration of construction. No noise impacts are anticipated for Contractor Yards 2 and 3 (2,065 feet south and 3,044 feet south, respectively) due to the distance to the closest residences.

ii. Rio Bravo Pipeline

178. Finally, for the dual pipeline system itself, Commission staff identified the census block groups crossed by the pipelines as the appropriate units of geographic analysis for assessing the facilities' impacts on environmental justice communities because impacts

³⁷⁶ Final EIS at 4-478 to 4-479.

³⁷⁷ *Id.* at 4-479.

³⁷⁸ *Id.* at 4-301.

³⁷⁹ *Id.* at 4-296.

³⁸⁰ *Id.*

related to noise, visual, traffic, and air emissions from construction and operation of the pipelines would be localized such that an expanded radius is not warranted.

179. For the Rio Bravo Pipeline Project, as proposed in Rio Bravo's Amendment Project application and approved herein, Commission staff identified 14 environmental justice community block groups crossed by the pipelines. Of those 14 environmental justice community block groups, seven have a minority population that either exceeds 50% or is meaningfully greater than their respective counties and seven have both a minority population and a low-income population that exceed the respective thresholds.³⁸¹

180. Commission staff's following updated analysis of pipeline impacts on the identified environmental justice communities addresses wetlands, surface water, recreational fishing, tourism, socioeconomics, traffic, noise, air quality, and visual resources.

(a) Wetlands

181. The final EIS finds that the total impacted wetland area for the pipeline facilities (107.3 acres) represents about 0.16% of the approximately 65,495 acres of wetlands contained within the HUC 12³⁸² watershed, in which the Rio Bravo Pipeline Project is located.³⁸³ Rio Bravo would be required to implement the conditions of its CWA section 404 permit and section 401 water quality certification to mitigate for wetland impacts.

182. All mitigation for the LNG terminal and the pipeline's facilities would take place in the same watersheds,³⁸⁴ located within the Miradores Mitigation site (approximately 11 miles north of the terminal) and the Loma Ecological Preserve (one mile south of the terminal).³⁸⁵ Based on Commission staff's updated environmental justice analysis, we conclude that with the implementation of these mitigation measures, impacts on wetlands would be minimized and would not have a significant impact on environmental justice communities.

³⁸¹ See app. B at tbl. 3.

³⁸² Bahia Grande-BSC Hydrologic Unit Code (HUC) 12 Watershed.

³⁸³ Final EIS at 4-429.

³⁸⁴ Rio Grande September 27, 2021 Filing.

³⁸⁵ Final EIS at 4-68.

183. Environmental justice communities in the study area would experience cumulative impacts on wetlands due to impacts previously discussed, along with additional impacts from the projects within the cumulative geographic scope for wetlands;³⁸⁶ however, impacts with the addition of the project would be less than significant.³⁸⁷ Because all impacts would be appropriately mitigated, we further conclude that the overall cumulative wetland impacts on environmental justice communities would be less than significant.

(b) Recreational and Subsistence Fishing

184. Regarding the Rio Bravo Pipeline Project, sights and sounds from the pipeline construction activities may be a nuisance to people fishing in the project vicinity, including at the Zapata boat launch, but construction would not prohibit visitors from using these areas.³⁸⁸ In general, impacts of construction of the pipeline project on recreational fishing would be temporary and limited to the period of active construction, which typically would last several days to several weeks in any one area, with the exception of the Zapata boat launch, which would be crossed by an HDD that could last up to 10 weeks.³⁸⁹ Known or designated fishing areas are not known to occur in the inland river and streams that are crossed by the pipeline facilities. Based on Commission staff's updated environmental justice analysis, we conclude that due to the temporary nature of impacts associated with pipeline construction and the limited adverse impact on recreational and subsistence fishing, recreational and subsistence fishing impacts on environmental justice communities associated with construction and operation of the pipeline project would not be significant.

(c) Tourism

185. Recreational areas that draw nature-oriented tourists would be crossed by the pipelines, including the Great Texas Coastal Birding Trails, a National Historic Landmark (King Ranch), the Zapata boat launch, and BND land subject to a wildlife crossing conservation easement.³⁹⁰ The Lower Rio Grande Valley and Laguna Atascosa

³⁸⁶ Rio Grande May 20, 2022 Response to Commission staff's May 2, 2022 Environmental Information Request at tbl. 4.13.1-2.

³⁸⁷ Final EIS at 4-430.

³⁸⁸ *Id.* at 4-220.

³⁸⁹ *Id.*

³⁹⁰ *Id.* at 4-218.

National Wildlife Refuges would be less than 0.25 mile from the pipeline project.³⁹¹ Although pipeline construction would not prohibit visitors from using recreational areas, sights and sounds of pipeline construction activities may be a nuisance to visiting tourists, and could generally interfere with or diminish the quality of their experience by affecting wildlife movement.³⁹²

186. Given the number of tourism opportunities in the project area, tourists may go to other sites so that visitation patterns may change, but the number of visits to the project area would likely not. Given the availability of recreational opportunities further from the pipeline facility sites, the final EIS concluded that a decrease in visits would not be anticipated;³⁹³ therefore, based on Commission staff's updated environmental justice analysis which also considers the Amendment Project EA, we conclude that impacts on environmental justice communities associated with tourism (e.g., loss of revenue or jobs related to tourism) would not be significant.

187. Environmental justice communities in the study area would experience cumulative impacts on tourism from the Rio Bravo Pipeline Project,³⁹⁴ as previously described, along with additional impacts from the projects within the cumulative geographic scope for tourism;³⁹⁵ however, impacts with the addition of the project would be less than significant.³⁹⁶ Given the availability of recreational opportunities further from the facility sites, we further conclude that the overall cumulative tourism impacts on environmental justice communities would be less than significant.

(d) Socioeconomics

188. Construction of the Rio Bravo Pipeline Project facilities would require an average workforce of between 760 and 1,240 workers (peak of 1,500 workers) over two, non-consecutive 12-month periods, of which a majority would be non-local.³⁹⁷ For

³⁹¹ *Id.*

³⁹² *Id.* at 4-218.

³⁹³ Final EIS at 4-218 to 4-219.

³⁹⁴ *Id.* at 4-467.

³⁹⁵ Rio Grande May 20, 2022 Response to Commission staff's May 2, 2022 Environmental Information Request at tbl. 4.13.1-2.

³⁹⁶ Final EIS at 4-467.

³⁹⁷ *Id.* at 4-209.

the pipeline facilities, 20 new permanent positions would be added during operation, which would represent a negligible increase in the local population.³⁹⁸

189. During construction and operation of the Rio Bravo Pipeline Project, the temporary influx of workers/contractors into the area could increase the demand for community services, such as schools, police enforcement, and medical care as well as housing.³⁹⁹ As stated in the final EIS, as supplement by the Amendment Project EA, impacts on community services would be less than significant.⁴⁰⁰ In addition, an adequate number of housing units are available in the affected area; therefore, impacts on the local housing market would be less than significant.⁴⁰¹ Based on Commission staff's updated environmental justice analysis, we conclude that the socioeconomic impacts on environmental justice communities, due to an increased demand for community services and housing, would be less than significant.

190. Environmental justice communities in the study area would experience cumulative impacts on socioeconomic resources from the Rio Bravo Pipeline Project, as previously described, along with additional impacts from the projects within the cumulative geographic scope for socioeconomic resources;⁴⁰² however, impacts with the addition of the project would be less than significant.⁴⁰³ Given that community facilities would continue to operate adequately and the availability of housing units in the affected area, we further conclude that the cumulative socioeconomic impacts on environmental justice communities would be less than significant.

(e) Road Traffic

191. Construction of the Rio Bravo Pipeline Project facilities, including Compressor Station 1, Meter Stations HS4 and HS3, and the contractor yards, may temporarily affect roadway traffic due to increased vehicle traffic associated with construction workforce

³⁹⁸ *Id.* at 4-227.

³⁹⁹ *Id.* at 4-226 to 227.

⁴⁰⁰ *Id.* at 4-227.

⁴⁰¹ *Id.* at 4-225.

⁴⁰² Rio Grande May 20, 2022 Response to Commission staff's May 2, 2022 Environmental Information Request at tbl. 4.13.1-2.

⁴⁰³ Final EIS at 4-463.

commutes and the delivery of equipment and materials to the construction work area,⁴⁰⁴ which would occur in numerous environmental justice communities.⁴⁰⁵ To minimize impacts on traffic, Rio Bravo would provide adequate parking for workers to ensure that parking on the shoulders of major roads is avoided and install warning signs on roadways to notify travelers of construction activities.⁴⁰⁶ If traffic congestion occurs during construction, Rio Bravo would consider implementing additional measures, including, but not limited to, scheduling truck deliveries between peak commuting times, re-routing truck traffic to avoid busy roadways, and implementing temporary traffic signals.⁴⁰⁷ Rio Bravo will also file traffic mitigation procedures, developed in consultation with applicable transportation authorities, to maintain a Level of Service of C or better on roadways proposed for use during construction of the pipeline project.⁴⁰⁸ Based on Commission staff's updated environmental justice analysis, and given the maintenance of Level of Service C or better and with the implementation of mitigation measures, we conclude that the traffic impacts on environmental justice communities associated with construction of the pipeline project would be less than significant. Only a small number of permanent workers would be hired to operate the Rio Bravo Pipeline Project facilities and no measurable traffic increase would take place during operation.⁴⁰⁹ Therefore, traffic impacts on environmental justice communities associated with operation of the pipeline project would be less than significant.

192. Communities in the study area would experience cumulative impacts associated with traffic from the Rio Bravo Pipeline Project, as previously described, along with additional impacts from the projects within the cumulative geographic scope for traffic;⁴¹⁰ however, impacts from the addition of the project would be less than significant.⁴¹¹ Based on Commission staff's updated environmental justice analysis, we further

⁴⁰⁴ *Id.* at 4-230.

⁴⁰⁵ *See* app. B at tbls. 2 & 3.

⁴⁰⁶ Final EIS at 4-230.

⁴⁰⁷ *Id.*

⁴⁰⁸ *Id.*

⁴⁰⁹ *Id.*

⁴¹⁰ Rio Grande May 20, 2022 Response to Commission staff's May 2, 2022 Environmental Information Request at tbl. 4.13.1-2.

⁴¹¹ Final EIS at 4-465.

conclude that the overall cumulative traffic impacts on environmental justice communities would be less than significant.

(f) Noise

193. Sound levels resulting from construction of Rio Bravo Pipeline Project facilities (including use of the contractor yards) would vary over time and would depend upon the number and types of equipment operating, the level of operation, and the distance between sources and receptors.⁴¹² Construction equipment would be operated on an as-needed basis, and environmental justice communities near the construction areas may experience an increase in perceptible noise, but the effect would be temporary and local.⁴¹³ Sound from construction activities near environmental justice communities along the dual pipeline system route could be either intermittent or continuous, but would occur over a limited duration at any one location; with construction near residences limited to the shortest timeframe possible to safely install the facilities.⁴¹⁴

194. Rio Bravo conducted an HDD acoustical impact assessment, which found that sound levels for 24-hour HDD operations would exceed our noise criterion of an L_{dn} of 55 dBA at NSAs near four proposed HDDs at mileposts 82.0, 92.0, 93.0, and 118.7 within environmental justice communities. Rio Bravo will implement the following mitigation at HDD locations that would exceed our noise criterion of an L_{dn} of 55 dBA at NSAs: use of temporary sound barriers around the HDD workspace; use of sound barriers or an acoustical enclosure around the drilling mud cleaning system; and offer temporary housing to residents in the vicinity of HDD operation. In addition, Rio Bravo is required as a condition of the Commission's Authorization Order to prepare a noise mitigation plan prior to construction for each HDD where noise would exceed the Commission's noise criterion at the NSAs. Prior to any approval of the plans, Commission staff will ensure that the plans include the appropriate mitigation to meet the Commission's noise criteria and ensure that these plans are implemented during construction.⁴¹⁵

195. The final EIS concluded that environmental justice communities in the study area would experience cumulative impacts related to noise from the Rio Bravo Pipeline Project, as previously described, along with additional impacts from the projects within

⁴¹² *Id.* at 4-296.

⁴¹³ *Id.*

⁴¹⁴ *Id.*

⁴¹⁵ *Id.*, Condition 38 at 5-32.

the cumulative geographic scope for noise;⁴¹⁶ however, impact from the addition of the project would be less than significant.⁴¹⁷ Based on staff's updated environmental justice analysis, we conclude that overall cumulative noise impacts on environmental justice communities would be less than significant.

(g) Air Quality

196. As discussed in the final EIS section 4.11.1.3, construction of the Rio Bravo Pipeline Project would result in impacts on air quality. The construction emissions are anticipated from operation of construction equipment, operation of the onsite concrete batch plants, deliveries of supplies, worker commutes, and land disturbance. Fugitive dust emissions would include contributions from general site construction work (acreage impacted), earth-moving fugitive dust emissions (quantity of soil moved), and unpaved road travel (distance of travel and weight of vehicles). Fugitive dust would be produced primarily during the site preparation activities, when the site would be cleared of debris, leveled, and graded, including at proposed offsite facilities.⁴¹⁸

197. Also as discussed in the final EIS section 4.11.1.3, construction of the Rio Bravo Pipeline Project would result in a temporary increase in emissions due to the combustion of fuel in vehicles and equipment, dust generated from excavation, grading and fill activities, and general construction activities (e.g., painting and welding). Construction emissions associated with pipeline construction would be minimal and localized to the construction area, which would predominantly occur in sparsely populated areas.

198. The increase in diameter of Pipeline 1 would not result in additional construction emissions detailed in the Amendment Project EA. The proposed increase in diameter of Pipeline 1 would not change the construction emission estimates for the pipeline detailed in the final EIS.⁴¹⁹ Therefore, based on Commission staff's updated environmental justice analysis, we conclude that environmental justice communities would not experience significant air quality impacts during construction of the pipeline facilities.

⁴¹⁶ Rio Grande May 20, 2022 Response to Commission staff's May 2, 2022 Environmental Information Request at tbl. 4.13.1-2.

⁴¹⁷ Final EIS at 4-494 to 4-495.

⁴¹⁸ *Id.* at 4-256 to 4-257.

⁴¹⁹ Amendment Project EA at 25.

(h) Visual Impacts

199. Rio Bravo will construct and operate its pipeline facilities across large parcels of land consisting mostly of open land used for ranching and grazing, as well as agricultural land,⁴²⁰ which are partially located within environmental justice communities. This land also contains numerous easements for oil and gas pipelines, including at least 50 known foreign pipelines that would be crossed by the proposed pipeline project.⁴²¹ As a result, the existing viewshed is characterized, in part, by existing infrastructure associated with these systems.

200. Vegetation cover is generally limited at these locations; however, these areas include large tracts of land in a rural setting with no residences within sight. Visual receptors along the pipeline system route and in proximity to the proposed aboveground facilities would include motorists, including those from environmental justice communities, on nearby roadways who may be able to view construction workers and equipment, as well as the meter and compressor stations themselves during operation; however, their view would be short in duration. Based on Commission staff's updated environmental justice analysis, we conclude that the Meter Station HS4, in Jim Wells County, would result in short-term localized visual impacts during construction and a permanent but less than significant impact during operation.

201. Although construction of the pipelines would contribute to cumulative impacts on the viewshed, they would generally be temporary to short-term in nature.⁴²² Given the lack of visual receptors in the vicinity of aboveground facilities associated with the pipeline project, their contribution to cumulative visual impacts would be permanent, but minor.⁴²³ Following construction, the areas associated with the pipeline project would be restored in accordance with the project-specific Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) and Procedures.⁴²⁴

202. The physical facilities of the LNG terminal and the aboveground facilities associated with the pipeline project would result in a permanent and moderate changes in

⁴²⁰ Final EIS at 4-203.

⁴²¹ *Id.*

⁴²² *Id.* at 4-459.

⁴²³ *Id.*

⁴²⁴ The Plan and Procedures are a set of construction and mitigation measures developed to minimize the potential environmental impacts of the construction of pipeline projects.

the existing viewshed for nearby visual receptors,⁴²⁵ including those from environmental justice communities. In addition, the Texas LNG Terminal site, which is located immediately adjacent to the Rio Grande LNG Terminal site, has the potential to result in significant visual impacts.⁴²⁶ Based on Commission staff's updated environmental justice analysis, we conclude that the overall potential significant cumulative visual resources impacts on environmental justice communities would occur, along with additional impacts from the projects within the cumulative geographic scope for visual;⁴²⁷ however, the Rio Bravo Pipeline Project's contribution to these impacts would be less than significant.⁴²⁸

c. Environmental Justice Conclusion

203. As described in the final EIS and in the above analysis, the Rio Grande LNG Terminal and the amended Rio Bravo Pipeline Project will have a range of impacts on the environment and individuals living in the vicinity of the project facilities, including environmental justice communities.

204. For the Rio Grande LNG Terminal, out of 293 block groups within a 50-kilometer radius 286 block groups were considered environmental justice communities. The closest environmental justice block groups are Census Tract 142.02, Block Group 2 and Census Tract 127, Block Group 2, Census Tract 123.04, Block Group 4, and Census Tract 123.05, Block Group 1. For the Brownsville offsite parking location, Commission staff identified two environmental justice community block groups within a one-mile radius of the site. For the Port Isabel offsite parking location, Commission staff identified four environmental justice community block groups within a one-mile radius of the site.

205. For the Rio Bravo Pipeline Project, as proposed in Rio Bravo's Amendment Project application and approved herein, Commission staff identified 14 environmental justice community block groups crossed by the pipeline. Compressor Station 1 is not within an environmental justice block group; however, Commission staff identified 87 environmental justice community block groups within a 50-kilometer radius of the site. Meter Station HS3 (Kleberg County) is not located within an environmental justice block group; however, commission staff identified one environmental justice community

⁴²⁵ Final EIS at 4-459.

⁴²⁶ *Id.*

⁴²⁷ Rio Grande May 20, 2022 Response to Commission staff's May 2, 2022 Environmental Information Request at tbl. 4.13.1-2.

⁴²⁸ Final EIS at 4-459.

block group within a 1-mile radius of the site (Census Tract 9502.02, Block Group 2). Meter Station HS4 (Jim Wells County) is located within an environmental justice community (Census Tract 9502.02, Block Group 2). Contractor Yards 1, 2, and 3 are located within an environmental justice community (Census Tract 9503, Block Group 1, Census Tract 9501, Block Group 1, and Census Tract 144.01, Block Group 1, respectively).

206. Based on the foregoing analysis, we find that impacts on environmental justice populations from construction and operation of the LNG terminal, Meter Station HS4, the Meter Station located at the LNG terminal, Contractor Yards 1, 2 and 3, and a majority of the 135-mile pipeline would be disproportionately high and adverse because they would be predominately borne by environmental justice communities. In addition, based on Commission staff's updated environmental justice analysis above, we conclude that environmental justice communities within the Rio Grande LNG Terminal area may experience significant cumulative visual impacts when considered with other potential projects in the viewshed. Project-related impacts associated with wetlands, surface water, recreational and subsistence fishing, tourism, socioeconomics, traffic, visual resources, noise, and air quality would be less than significant.

IV. Conclusion

207. In conformance with the court's opinion, in this order on remand, we respond to the arguments pertaining to whether the use of the social cost of GHGs is required by CEQ's regulations and disclose the social cost of GHG calculations for informational purposes, but, as discussed, we do not characterize the significance of the projects' GHG emissions. Additionally, consistent with CEQ and EPA guidance and recommendations, the Commission conducted a new environmental justice analysis with updated units of geographic analysis for assessing the projects' impacts on environmental justice communities. We conclude that the impacts on environmental justice populations from the projects would be disproportionately high and adverse because they would be predominately borne by the environmental justice communities identified and, specifically, communities in the areas near the Rio Grande LNG Terminal may experience significant cumulative visual impacts; but all other impacts would be less than significant for both the Rio Grande LNG Terminal and the Rio Bravo Pipeline Project.

208. We continue to find that the projects, as conditioned in the Authorization Order and as modified herein, are environmentally acceptable actions. We continue to support our previous findings of the benefits of these projects. Further, as stated above, we find that the Rio Grande LNG Terminal is not inconsistent with the public interest and that the Rio Bravo Pipeline Project, as amended, is required by the public convenience and necessity, as conditioned in the Authorization Order and as modified herein.

209. Compliance with the environmental conditions appended to our orders is integral to ensuring that the environmental impacts of approved projects are consistent with those

anticipated by our environmental analyses. Thus, Commission staff carefully reviews all information submitted. Only when satisfied that the applicant has complied with all applicable conditions will a notice to proceed with the activity to which the conditions are relevant be issued. We also note that the Commission has the authority to take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the project, including authority to impose any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the order, as well as the avoidance or mitigation of unforeseen adverse environmental impacts resulting from project construction and operation.

210. Any state or local permits issued with respect to the jurisdictional facilities authorized herein must be consistent with the conditions of this authorization. The Commission encourages cooperation between interstate pipelines and local authorities. However, this does not mean that state and local agencies, through application of state or local laws, may prohibit or unreasonably delay the construction or operation of facilities approved by this Commission.⁴²⁹

211. At a hearing held on April 20, 2023, the Commission on its own motion received and made a part of the record in this proceeding all evidence, including the application, applicant data responses, and exhibits therein, and all comments, and upon consideration of the record.

The Commission orders:

(A) The Order Granting Authorizations under Sections 3 and 7 of the Natural Gas Act in Docket No. CP16-455-000 is amended, as described and conditioned herein, and as more fully described in the application and subsequent filings by the applicant, including any commitments made therein.

(B) Rio Bravo's revised initial rates and *pro forma* tariff records are approved, as discussed above.

(C) Rio Bravo shall file actual tariff records that comply with the requirements contained in the body of this order at least 30 days but not more than 60 days prior to the

⁴²⁹ See 15 U.S.C. § 717r(d) (state or federal agency's failure to act on a permit considered to be inconsistent with Federal law); see also *Schneidewind v. ANR Pipeline Co.*, 485 U.S. 293, 310 (1988) (state regulation that interferes with FERC's regulatory authority over the transportation of natural gas is preempted); *Dominion Transmission, Inc. v. Summers*, 723 F.3d 238, 245 (D.C. Cir. 2013) (noting that state and local regulation is preempted by the NGA to the extent it conflicts with federal regulation, or would delay the construction and operation of facilities approved by the Commission).

commencement of interstate service consistent with Part 154 of the Commission's regulations.

(D) The Commission affirms its earlier determinations that the Rio Grande LNG Terminal is not inconsistent with the public interest, and the Rio Bravo Pipeline Project, as amended, is required by the public convenience and necessity.

(E) All directives in the Authorization Order remain in effect, except for the revision to the requirement to file actual records 60 days before the commencement of interstate service, as discussed above.

(F) Rio Bravo and Rio Grande shall continue to comply with all applicable terms and the environmental conditions set forth in the Appendix to the Authorization Order.

(G) The certificate authority issued in Ordering Paragraphs (A) and (D) is conditioned on Rio Bravo's compliance with the environmental conditions in Appendix A to this order.

(H) The NGA section 3 authorization in Ordering Paragraph (D) is conditioned on Rio Grande's compliance with the environmental conditions in Appendix A to this order.

(I) Rio Bravo shall comply with all applicable Commission regulations under the NGA, particularly the general terms and conditions set forth in paragraphs (a), (b), (c), (e), and (f) of section 157.20 of the regulations.

(J) Rio Bravo shall complete construction of the proposed facilities and make them available for service within the timeframe conditioned in the Authorization Order, in accordance with section 157.20(b) of the Commission's regulations.

(K) Rio Grande and Rio Bravo shall notify the Commission's environmental staff by telephone or e-mail of any environmental noncompliance identified by other federal, state, or local agencies on the same day that such agency notifies Rio Grande or Rio Bravo. Rio Grande and Rio Bravo shall file written confirmation of such notification with the Secretary of the Commission within 24 hours.

(L) Sierra Club's request for a trial-type hearing is denied, as discussed in the body of this order.

By the Commission. Chairman Phillips is concurring with a separate statement attached.

Commissioner Clements is dissenting with a separate statement attached.

(S E A L)

Debbie-Anne A. Reese,
Deputy Secretary.

Appendix A

Rio Bravo Environmental Conditions

Rio Bravo shall continue to comply with environmental conditions set forth in the Appendix to the Commission's November 22, 2019 *Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act* specific to Docket No. CP16-455-000, and those conditions apply to the amended facilities. In addition, as recommended in the Environmental Assessment (EA), this authorization includes the following conditions:

1. Rio Bravo Pipeline Company, LLC (Rio Bravo) shall follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the order. Rio Bravo must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
 - b. justify each modification relative to site-specific conditions;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
 - d. receive approval in writing from the Director of the Office of Energy Projects (OEP), or the Director's designee, **before using that modification.**
2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the order, and take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the project. This authority shall allow:
 - a. the modification of conditions of the order;
 - b. stop-work authority; and
 - c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from project construction and operation.

3. Rio Bravo shall file a noise survey with the Secretary **no later than 60 days** after the modified Compressor Station 1 is placed in service. If a full load condition noise survey is not possible, Rio Bravo shall provide an interim survey at the maximum possible horsepower load and provide the full load survey **within six months**. If the noise attributable to the operation of all of the equipment at the facility under interim or full horsepower load conditions exceeds a day-night level of 55 A-weighted decibels at any nearby noise-sensitive areas, Rio Bravo shall file a report on what additional noise controls are needed and shall install the additional noise controls to meet the level **within one year** of the in-service date. Rio Bravo shall confirm compliance with the above requirement by filing an additional noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls.
4. All conditions attached to the water quality certification issued by Texas Railroad Commission constitute mandatory conditions of this Authorization Order. **Prior to construction**, Rio Bravo shall file, for review and written approval of the Director of OEP, or the Director's designee, any revisions to its project design necessary to comply with the water quality certification conditions.

Rio Grande Authorization Order
Modified Environmental Conditions 53 and 54 and
Additional Environmental Condition 144

Rio Grande shall continue to comply with environmental conditions set forth in the Appendix to the Commission's November 22, 2019 *Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act* specific to Docket No. CP16-454-000. In addition, as recommended in this order, this order modifies conditions 53 and 54 and includes condition 144:

53. **Prior to construction of final design**, Rio Grande shall file with the Secretary, for review and approval by the Director of OEP, or their designee, an updated Emergency Response Plan, including evacuation and any sheltering and re-entry, and coordinate procedures with the U.S. Coast Guard; state, county, and local emergency planning groups; fire departments; state and local law enforcement; and other appropriate federal agencies. This plan shall be consistent with recommended and good engineering practices, as defined in National Fire Protection Association (NFPA) 1600, NFPA 1616, NFPA 1620, NFPA 470, NFPA 475, or approved equivalents, and based on potential impacts and onsets of hazards from accidental and intentional events along the liquefied natural gas (LNG) marine vessel route and potential impacts and onset of hazards from accidental and intentional events at the LNG terminal, including but not limited to a catastrophic failure of the largest LNG tank. This plan shall address any special considerations and pre-incident planning for infrastructure and public with access and functional needs and shall include at a minimum:

- a. materials and plans for periodic dissemination of public education and training materials in English and Spanish for potential hazards and impacts, identification of potential hazards, and steps for public notification, evacuation, and shelter in place within any transient hazard areas along the marine vessel route, and within LNG terminal hazard areas;
- b. plans to competently train emergency responders required to effectively and safely respond to hazardous material incidents including, but not limited to, LNG fires and dispersion;
- c. plans to competently train emergency responders to effectively and safely evacuate or shelter public within transient hazard areas along the marine vessel route, and within hazard areas from LNG terminal;
- d. designated contacts with federal, state, and local emergency response agencies responsible for emergency management and response within any transient

- hazard areas along the marine vessel route, and within hazard areas from LNG terminal;
- e. scalable procedures for the prompt notification of appropriate local officials and emergency response agencies based on the level and severity of potential incidents;
 - f. scalable procedures for mobilizing response and establishing a unified command, including identification, location, and design of any emergency operations centers and emergency response equipment required to effectively and safely respond to hazardous material incidents and evacuate or shelter public within transient hazard areas along the marine vessel route, and within LNG terminal hazard areas;
 - g. scalable procedures for notifying public, including identification, location, design, and use of any permanent sirens or other warning devices required to effectively communicate and warn the public prior to onset of debilitating hazards within any transient hazard areas along the LNG marine vessel route and within hazard areas from LNG terminal;
 - h. scalable procedures for evacuating the public, including identification, location, design, and use of evacuation routes/methods and any mustering locations required to effectively and safely evacuate the public within any transient hazard areas along the LNG marine transit route and within hazard areas from LNG terminal; and
 - i. scalable procedures for sheltering the public, including identification, location, design, and use of any shelters demonstrated to be needed and demonstrated to effectively and safely shelter the public prior to onset of debilitating hazards within transient hazard areas that may better benefit from sheltering in place (i.e., those within Zones of Concern 1 and 2), along the route of the LNG marine vessel and within hazard areas that may benefit from sheltering in place (i.e., those within areas of 1,600 BTU/ft²-hr and 10,000 BTU/ft²-hr radiant heats from fires with farthest impacts, including from a catastrophic failure of largest LNG tank) of the LNG terminal.

Rio Grande shall notify Commission staff of all planning meetings in advance and shall report progress on the development of its Emergency Response Plan **at 3-month intervals**. Rio Grande shall file with the Secretary public versions of offsite emergency response procedures for public notification, evacuation, and shelter in place.

54. **Prior to construction of final design**, Rio Grande shall file with the Secretary for review and written approval by the Director of the Office of Energy Projects, or the

Director's designee, an updated Cost-Sharing Plan identifying the mechanisms for funding all Project-specific security/emergency management costs that would be imposed on state and local agencies. This comprehensive plan shall include funding mechanisms for the capital costs associated with any necessary security/emergency management equipment and personnel base. This plan shall include sustained funding of any requirement or resource gap analysis identified to effectively and safely evacuate and shelter public and to effectively and safely respond to hazardous material incidents consistent with recommended and good engineering practices. Rio Grande shall notify Commission staff of all planning meetings in advance and shall report progress on the development of its Cost Sharing Plan **at 3-month intervals**.

144. **Prior to commissioning**, Rio Grande shall file with the Secretary, for review and written approval by the Director of the Office of Energy Projects, or the Director's designee, a Project Ambient Air Quality Mitigation and Monitoring Plan for periods when construction, commissioning and start-up, and operation of the LNG terminal occur simultaneously. To ensure that concurrent emissions during construction, commissioning and start-up, and operation of terminal facilities are effectively mitigated, the plan's thresholds for concentrations of particulate matter (PM_{2.5} and PM₁₀) and nitrogen oxide (NO₂) must be established based on the National Ambient Air Quality Standards (NAAQS), as specified in 40 C.F.R. Part 50 and shall:

- a. include a monitoring plan for PM_{2.5}, PM₁₀, and NO₂, including a description of the site selection process for the proposed locations for air quality monitors; data management; reporting; and protocols to manage any potential exceedances of the NAAQS for PM_{2.5}, PM₁₀, and NO₂ that may be observed during the monitoring activities;
- b. detail what measures Rio Grande will implement should the levels of PM_{2.5} or PM₁₀ exceed the NAAQS 24-hour limit or should the levels of NO₂ exceed the NAAQS 1-hour limit as specified in 40 C.F.R. Part 50; and
- c. provide that Rio Grande will file weekly reports during periods when the plan is in use, documenting the duration of any exceedances, reasons for elevated levels of PM_{2.5}, PM₁₀, or NO₂, actual measured values, and to the extent there are exceedances, what minimization or mitigation measures Rio Grande implemented to reduce these levels and documentation of a reduction to or below the threshold(s).

Appendix B

Environmental Justice Tables and Figures

Docket No. CP16-454-003, et al.

B- 2 -

Table 1 Minority Populations by Race and Low-Income Populations within 50 Kilometers of Rio Grande LNG Terminal											
State/ County/ Tract/ Block Group	Total Population	RACE COLUMN								Total Minority (%) ^{a,b}	LOW- INCOME COLUMN Below Poverty Level (%) ^b
		White (Not Hispanic) (%)	Black or African American (%)	American Indian and Alaskan Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Some other race (%)	Two or more races (%)	Hispanic or Latino (%)		
Texas	28,635,442	41.4	11.8	0.2	4.9	0.1	0.2	2.0	39.4	58.6	13.4
Rio Grande LNG Terminal											
Cameron County	422,135	8.8	0.4	0.1	0.7	0.0	0.0	0.2	89.8	91.2	25.7
Census Tract 101.01, Block Group 1	1,645	3.2	0.0	0.0	0.6	0.0	0.0	0.0	96.2	96.8	31.8
Census Tract 101.01, Block Group 2	1,622	18.4	0.0	1.4	0.0	0.0	0.0	0.0	80.3	81.6	7.3
Census Tract 101.01, Block Group 3	881	15.4	0.0	0.0	0.0	0.0	0.0	2.7	81.8	84.6	28.0
Census Tract 101.02, Block Group 1	361	66.2	0.0	0.0	5.5	0.0	0.0	8.0	20.2	33.8	15.8
Census Tract 101.02, Block Group 2	1,112	36.3	0.0	0.0	0.0	0.0	0.0	0.0	63.7	63.7	52.4
Census Tract 101.02, Block Group 3	520	22.3	0.0	0.0	0.0	0.0	0.0	0.0	77.7	77.7	29.6
Census Tract 101.03, Block Group 1	1,834	2.0	0.0	0.0	0.0	0.0	0.0	0.0	98.0	98.0	31.2
Census Tract 101.03, Block Group 2	1,344	3.7	0.0	0.0	0.0	0.0	0.0	3.7	92.6	96.3	13.6
Census Tract 102.01, Block Group 1	1,402	4.3	0.0	0.0	0.0	0.0	0.0	0.0	95.7	95.7	15.2
Census Tract 102.01, Block Group 2	574	8.5	0.0	0.0	0.0	0.0	0.0	0.0	91.5	91.5	13.7
Census Tract 102.04, Block Group 1	2,264	29.3	0.0	0.0	0.0	0.0	0.0	0.0	70.7	70.7	15.4
Census Tract 102.04, Block Group 2	1,682	30.6	0.0	0.0	0.1	0.0	0.0	0.0	69.3	69.4	29.9
Census Tract 102.05, Block Group 1	1,353	14.6	0.4	0.0	0.0	0.0	0.0	0.0	85.0	85.4	20.4
Census Tract 102.05, Block Group 2	1,190	25.6	0.0	0.0	1.1	0.0	0.0	0.0	73.3	74.4	13.7
Census Tract 102.05, Block Group 4	927	20.0	0.0	0.0	0.0	0.0	0.0	0.0	80.0	80.0	18.0
Census Tract 104.04, Block Group 1	882	26.0	0.0	0.0	0.0	0.0	0.0	0.0	74.0	74.0	6.9
Census Tract 104.04, Block Group 2	2,129	0.9	5.1	0.0	0.0	0.0	0.0	0.0	94.0	99.1	15.0
Census Tract 104.05, Block Group 2	1,573	19.5	0.0	0.0	2.2	0.0	0.0	0.0	78.3	80.5	0.0
Census Tract 104.06, Block Group 1	1,423	5.1	0.0	0.0	0.0	0.0	0.0	0.0	94.9	94.9	0.0
Census Tract 104.06, Block Group 2	1,473	7.8	0.0	0.0	0.0	0.0	0.0	0.0	92.2	92.2	27.1
Census Tract 105, Block Group 1	551	8.5	0.0	0.0	0.0	0.0	0.0	0.0	91.5	91.5	4.3
Census Tract 105, Block Group 2	2,218	2.7	0.0	0.0	0.1	0.0	0.0	0.0	97.2	97.3	23.6
Census Tract 106.02, Block Group 1	1,607	27.4	1.4	0.0	1.6	0.0	0.0	4.2	65.3	72.6	7.6
Census Tract 106.03, Block Group 1	1,198	4.1	0.0	0.0	0.0	0.0	0.0	1.0	94.9	95.9	28.7
Census Tract 106.03, Block Group 2	1,463	14.4	0.8	0.0	0.0	0.0	0.0	0.0	84.8	85.6	24.5
Census Tract 106.03, Block Group 3	1,755	15.7	0.3	0.0	0.0	0.0	0.0	0.6	83.5	84.3	46.2
Census Tract 106.04, Block Group 1	1,463	3.1	0.0	0.0	3.3	0.0	0.0	0.0	93.6	96.9	38.1
Census Tract 106.04, Block Group 2	1,498	12.6	0.0	0.0	10.0	0.0	0.0	0.0	77.4	87.4	28.0
Census Tract 106.04, Block Group 3	1,170	8.9	0.0	3.8	0.7	0.0	0.0	3.2	83.4	91.1	18.2
Census Tract 107, Block Group 1	923	3.4	0.0	0.0	0.0	0.0	0.0	0.0	96.6	96.6	0.0

Docket No. CP16-454-003, et al.

B-3 -

Census Tract 107, Block Group 2	819	17.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.5	82.5	42.5
Census Tract 107, Block Group 3	1,206	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	79.8	88.1	17.2
Census Tract 108.01, Block Group 1	935	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	92.1	92.1	43.9
Census Tract 108.01, Block Group 2	1,521	16.8	0.5	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	80.3	83.2	4.6
Census Tract 108.01, Block Group 3	1,899	11.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	88.3	88.3	41.3
Census Tract 108.02, Block Group 1	2,503	5.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	93.8	94.9	35.9
Census Tract 108.02, Block Group 2	774	21.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	78.7	78.7	27.8
Census Tract 108.02, Block Group 3	572	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0
Census Tract 109, Block Group 1	410	7.3	3.7	0.0	0.0	1.0	0.0	0.0	0.0	0.0	3.7	84.4	92.7	27.7
Census Tract 109, Block Group 2	915	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	95.2	98.3	36.4
Census Tract 110, Block Group 1	585	22.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	77.9	77.9	56.5
Census Tract 110, Block Group 2	673	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.0	96.0	51.2
Census Tract 110, Block Group 3	1,344	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.4	97.4	50.3
Census Tract 111, Block Group 1	605	19.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	79.3	80.7	25.1
Census Tract 111, Block Group 2	1,255	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.6	98.6	33.5
Census Tract 111, Block Group 3	561	13.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	86.8	86.8	15.2
Census Tract 112, Block Group 1	922	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.9	89.9	32.3
Census Tract 112, Block Group 2	696	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	87.5	87.5	32.8
Census Tract 113.01, Block Group 1	726	20.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	79.5	79.5	10.0
Census Tract 113.01, Block Group 2	640	16.9	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	81.6	83.1	26.0
Census Tract 113.02, Block Group 1	1,309	28.7	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	61.4	71.3	8.3
Census Tract 113.02, Block Group 2	1,333	32.9	3.2	0.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	57.1	67.1	5.5
Census Tract 113.02, Block Group 3	1,838	21.7	6.3	0.7	0.0	4.0	0.0	0.0	0.0	0.0	0.0	67.2	78.3	1.5
Census Tract 114.01, Block Group 1	1,051	35.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	64.8	64.8	7.5
Census Tract 114.01, Block Group 2	1,972	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	92.2	92.2	32.0
Census Tract 114.01, Block Group 3	1,806	14.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	83.2	86.0	0.0
Census Tract 114.02, Block Group 1	1,006	15.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	84.4	84.4	12.9
Census Tract 114.02, Block Group 2	1,187	28.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	71.5	71.5	24.5
Census Tract 114.02, Block Group 3	783	24.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.7	75.7	26.3
Census Tract 115, Block Group 1	637	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.8	94.8	35.8
Census Tract 115, Block Group 2	869	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.3	100.0	31.9
Census Tract 115, Block Group 3	1,265	1.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.3	98.4	36.3
Census Tract 115, Block Group 4	547	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	93.1	93.1	24.4
Census Tract 115, Block Group 5	2,848	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.7	97.7	30.0
Census Tract 116.01, Block Group 1	731	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.3	97.3	52.2
Census Tract 116.01, Block Group 2	1,600	1.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.0	98.8	27.1
Census Tract 116.02, Block Group 1	876	8.6	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	90.4	91.4	12.7
Census Tract 116.02, Block Group 2	2,402	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	97.2	97.6	25.1
Census Tract 117.01, Block Group 1	898	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	43.4
Census Tract 117.01, Block Group 2	3,230	4.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.9	95.2	35.7
Census Tract 117.02, Block Group 1	1,600	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.9	99.9	38.0
Census Tract 117.02, Block Group 2	892	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	32.9
Census Tract 117.02, Block Group 3	1,103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	36.4

Docket No. CP16-454-003, et al.

B-4 -

Census Tract 118.01, Block Group 1	1,375	3.1	1.2	0.0	4.1	0.0	0.0	0.0	91.6	96.9	44.6
Census Tract 118.01, Block Group 2	1,675	1.2	0.0	0.0	0.0	0.0	0.0	0.0	98.8	98.8	6.7
Census Tract 118.01, Block Group 3	930	21.4	4.0	0.0	0.0	0.0	0.0	0.0	74.6	78.6	38.4
Census Tract 118.01, Block Group 4	1,241	19.3	1.6	0.0	0.6	0.0	0.0	0.4	78.1	80.7	18.5
Census Tract 118.02, Block Group 1	453	5.5	1.8	0.0	0.0	0.0	0.0	6.0	86.8	94.5	15.6
Census Tract 118.02, Block Group 2	1,859	4.6	1.5	0.0	0.0	0.0	0.0	0.0	93.9	95.4	49.8
Census Tract 118.02, Block Group 3	1,451	9.8	0.0	0.0	2.9	0.0	0.0	0.0	87.3	90.2	27.9
Census Tract 120.02, Block Group 1	562	22.6	0.0	0.0	0.0	0.0	0.0	0.0	77.4	77.4	21.2
Census Tract 120.02, Block Group 3	1,874	8.3	0.0	0.0	0.0	0.0	0.0	0.0	91.7	91.7	18.0
Census Tract 120.02, Block Group 4	905	12.4	0.3	0.0	0.0	0.0	0.0	0.0	87.3	87.6	7.0
Census Tract 120.03, Block Group 1	1,045	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	17.7
Census Tract 120.03, Block Group 2	1,176	15.5	4.8	0.0	2.0	0.0	0.0	4.3	73.4	84.5	6.7
Census Tract 120.03, Block Group 3	1,229	20.5	5.5	0.0	3.5	0.0	0.0	0.0	70.5	79.5	26.9
Census Tract 120.04, Block Group 3	467	64.5	0.0	0.0	0.0	0.0	0.0	0.0	35.5	35.5	8.9
Census Tract 121.03, Block Group 1	392	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2
Census Tract 121.04, Block Group 1	1,772	9.4	0.0	0.0	3.4	0.3	0.0	0.5	86.3	90.6	0.0
Census Tract 121.04, Block Group 2	1,769	4.2	0.0	0.0	0.0	0.0	0.0	0.0	95.8	95.8	22.5
Census Tract 121.04, Block Group 3	911	5.9	0.0	0.0	0.0	0.0	0.0	0.0	94.1	94.1	5.0
Census Tract 121.05, Block Group 1	1,333	6.0	0.0	0.0	0.0	0.0	0.0	0.0	94.0	94.0	14.1
Census Tract 121.05, Block Group 2	1,357	0.4	0.0	0.0	0.0	0.0	0.0	0.0	99.6	99.6	47.1
Census Tract 121.06, Block Group 1	627	7.5	0.0	0.0	0.0	0.0	0.0	0.0	92.5	92.5	43.0
Census Tract 121.06, Block Group 2	978	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	45.7
Census Tract 122.01, Block Group 1	409	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	46.9
Census Tract 122.01, Block Group 2	1,367	15.3	14.2	0.0	0.0	0.0	0.3	0.1	70.1	84.7	22.7
Census Tract 122.01, Block Group 3	1,559	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	8.8
Census Tract 122.02, Block Group 1	1,428	1.1	0.1	0.0	0.0	0.0	0.0	0.0	98.7	98.9	23.0
Census Tract 122.02, Block Group 2	1,067	9.1	0.0	0.0	0.0	0.0	0.1	0.5	90.3	90.9	13.0
Census Tract 122.02, Block Group 3	995	5.7	0.0	13.1	0.0	0.0	0.0	0.0	81.2	94.3	15.6
Census Tract 122.03, Block Group 1	1,464	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	42.9
Census Tract 122.03, Block Group 2	533	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	8.3
Census Tract 122.03, Block Group 3	2,736	0.3	0.0	0.0	0.0	0.0	0.0	0.0	99.7	99.7	31.4
Census Tract 123.01, Block Group 1	1,619	53.2	0.0	0.0	1.6	0.0	0.0	0.0	45.2	46.8	11.1
Census Tract 123.01, Block Group 2	821	53.3	1.5	1.1	0.0	0.0	0.0	0.0	44.1	46.7	22.4
Census Tract 123.01, Block Group 3	174	51.7	0.0	0.0	0.0	0.0	0.0	0.0	48.3	48.3	18.5
Census Tract 123.01, Block Group 4	1,105	66.2	0.0	0.0	0.0	0.0	0.0	0.4	33.5	33.8	29.3
Census Tract 123.04, Block Group 1	538	52.6	0.0	0.0	0.0	0.0	0.0	0.0	47.4	47.4	33.7
Census Tract 123.04, Block Group 2	2,289	6.2	0.0	0.0	0.0	0.0	0.0	0.0	93.8	93.8	40.0
Census Tract 123.04, Block Group 3	1,219	42.7	0.0	0.0	0.0	0.0	0.0	1.1	56.2	57.3	10.0
Census Tract 123.04, Block Group 4	786	7.1	0.0	0.0	8.8	0.0	0.0	0.0	84.1	92.9	42.0
Census Tract 123.05, Block Group 1	3,079	70.6	4.4	0.0	2.2	0.0	0.0	1.2	21.6	29.4	10.0
Census Tract 124.02, Block Group 1	1,882	18.7	0.0	0.0	0.0	0.0	0.0	0.0	81.3	81.3	23.1
Census Tract 124.02, Block Group 2	638	10.8	0.0	0.0	0.0	0.0	0.0	0.0	89.2	89.2	37.6
Census Tract 124.02, Block Group 3	1,100	11.6	0.0	0.0	0.0	0.0	0.0	0.0	88.4	88.4	47.8

Docket No. CP16-454-003, et al.

B- 5 -

Census Tract 124.02, Block Group 4	2,392	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.5	90.5	38.8
Census Tract 124.03, Block Group 1	1,081	27.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	72.5	72.5	25.3
Census Tract 124.03, Block Group 2	2,423	9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.4	90.4	16.0
Census Tract 124.04, Block Group 1	1,285	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.7	97.7	20.2
Census Tract 124.04, Block Group 2	2,015	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	96.4	97.2	57.7
Census Tract 124.04, Block Group 3	822	17.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.4	82.4	30.7
Census Tract 125.06, Block Group 1	1,458	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.8	96.8	10.0
Census Tract 125.06, Block Group 2	1,314	25.8	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	73.4	74.2	7.7
Census Tract 125.06, Block Group 3	1,702	24.2	0.0	1.7	6.7	0.0	0.0	0.0	0.0	0.0	67.4	75.8	11.5
Census Tract 125.08, Block Group 1	1,459	24.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.9	75.9	16.8
Census Tract 125.08, Block Group 2	2,785	4.9	0.0	0.2	0.7	0.0	0.0	0.0	0.0	0.0	94.2	95.1	21.7
Census Tract 125.09, Block Group 1	862	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	42.4
Census Tract 125.09, Block Group 2	2,092	13.0	0.0	0.0	7.6	0.0	0.0	0.0	0.0	0.0	79.5	87.0	53.9
Census Tract 125.10, Block Group 1	2,251	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	3.2	96.8	100.0	30.0
Census Tract 125.10, Block Group 2	2,357	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.7	94.7	20.9
Census Tract 125.10, Block Group 3	1,567	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.4	97.4	32.0
Census Tract 125.11, Block Group 1	1,716	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.6	98.6	22.1
Census Tract 125.11, Block Group 2	1,938	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.6	96.6	9.2
Census Tract 125.11, Block Group 3	1,983	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	29.4
Census Tract 125.12, Block Group 1	998	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	51.6
Census Tract 125.12, Block Group 2	1,531	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	35.1
Census Tract 125.13, Block Group 1	2,104	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	95.6	95.6	30.6
Census Tract 125.13, Block Group 2	1,354	12.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	87.3	87.3	27.4
Census Tract 125.14, Block Group 1	3,485	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	16.4
Census Tract 125.14, Block Group 2	2,160	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	85.0	85.0	16.9
Census Tract 125.15, Block Group 1	2,411	6.1	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	92.0	93.9	6.6
Census Tract 125.15, Block Group 2	721	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0
Census Tract 125.16, Block Group 1	766	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	21.1
Census Tract 125.16, Block Group 2	311	10.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.7	89.7	0.0
Census Tract 125.16, Block Group 3	1,274	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0
Census Tract 125.17, Block Group 1	1,324	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.3	94.3	8.8
Census Tract 125.17, Block Group 2	898	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.7	98.7	0.0
Census Tract 125.17, Block Group 3	1,260	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.7	97.7	25.2
Census Tract 126.07, Block Group 1	1,508	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.8	99.8	21.8
Census Tract 126.07, Block Group 2	1,172	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.9	97.9	50.2
Census Tract 126.08, Block Group 1	1,483	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.8	99.3	33.7
Census Tract 126.08, Block Group 2	918	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	93.7	93.7	32.5
Census Tract 126.08, Block Group 3	2,401	0.9	0.0	0.0	3.9	0.0	0.0	0.0	0.0	0.0	95.2	99.1	9.0
Census Tract 126.08, Block Group 4	385	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Census Tract 126.13, Block Group 1	846	8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	91.1	91.1	15.0
Census Tract 126.13, Block Group 2	882	5.8	0.9	0.0	3.6	0.0	0.0	0.0	0.0	0.0	89.7	94.2	3.4
Census Tract 126.13, Block Group 3	2,020	3.4	0.0	0.0	2.7	0.0	0.0	0.0	0.9	0.9	93.0	96.6	11.0
Census Tract 126.13, Block Group 4	1,506	2.9	6.0	0.0	4.3	0.0	0.0	0.0	1.1	1.1	85.7	97.1	23.0

Docket No. CP16-454-003, et al.

B- 6 -

Census Tract 126.14, Block Group 1	1,690	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	38.2
Census Tract 126.14, Block Group 2	1,572	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.6	98.6	42.1
Census Tract 126.15, Block Group 1	1,181	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.2	98.2	35.3
Census Tract 126.15, Block Group 2	1,135	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	28.9
Census Tract 126.15, Block Group 3	976	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	33.5
Census Tract 126.16, Block Group 1	1,886	6.3	0.5	2.4	0.0	0.0	0.0	0.0	0.0	0.0	90.8	93.7	8.6
Census Tract 126.16, Block Group 2	1,777	1.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.1	98.5	6.5
Census Tract 126.17, Block Group 1	1,133	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.5	98.5	22.2
Census Tract 126.17, Block Group 2	1,588	1.1	1.1	0.0	0.0	4.3	0.0	0.0	0.0	0.0	93.4	98.9	6.8
Census Tract 126.17, Block Group 3	679	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	11.9
Census Tract 127, Block Group 1	1,459	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.3	99.3	31.1
Census Tract 127, Block Group 2	599	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.2	94.2	48.5
Census Tract 127, Block Group 3	1,326	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.8	98.8	31.4
Census Tract 127, Block Group 4	1,688	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.2	94.2	49.9
Census Tract 128, Block Group 1	1,278	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.4	94.4	10.3
Census Tract 128, Block Group 2	939	13.4	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	84.0	86.6	0.0
Census Tract 128, Block Group 3	1,071	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.4	98.4	33.7
Census Tract 128, Block Group 4	1,573	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.2	99.2	23.7
Census Tract 129, Block Group 1	1,039	12.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	1.3	83.4	88.0	30.7
Census Tract 129, Block Group 2	359	23.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	76.9	76.9	24.7
Census Tract 129, Block Group 3	2,314	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	92.4	92.4	40.1
Census Tract 129, Block Group 4	619	24.7	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	73.0	75.3	33.8
Census Tract 130.02, Block Group 1	1,311	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	93.1	93.1	13.7
Census Tract 130.02, Block Group 2	734	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.2	96.2	27.8
Census Tract 130.02, Block Group 3	738	11.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	88.3	88.3	20.1
Census Tract 130.02, Block Group 4	1,403	4.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	94.4	96.0	49.8
Census Tract 130.03, Block Group 1	855	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	95.9	95.9	43.3
Census Tract 130.03, Block Group 2	1,311	5.0	1.4	0.5	0.0	0.0	0.0	0.0	0.0	0.7	92.4	95.0	44.6
Census Tract 130.04, Block Group 1	743	15.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	84.3	84.3	17.2
Census Tract 130.04, Block Group 2	676	22.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	77.1	78.0	15.8
Census Tract 130.04, Block Group 3	852	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.5	97.5	20.3
Census Tract 131.02, Block Group 1	676	9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.4	90.4	7.3
Census Tract 131.02, Block Group 2	1,770	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	95.7	95.7	12.5
Census Tract 131.02, Block Group 3	1,760	10.8	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	87.8	89.2	27.1
Census Tract 131.04, Block Group 1	1,419	8.4	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	90.8	91.6	0.0
Census Tract 131.04, Block Group 2	859	14.1	0.0	0.0	0.0	0.6	0.0	0.0	0.0	2.9	82.4	85.9	2.9
Census Tract 131.04, Block Group 3	853	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.9	98.9	36.7
Census Tract 131.06, Block Group 1	1,910	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.3	98.3	61.5
Census Tract 131.06, Block Group 2	1,830	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.0	99.0	32.6
Census Tract 131.06, Block Group 3	1,120	4.1	0.0	0.0	0.0	1.3	0.0	0.0	0.0	1.4	93.2	95.9	25.9
Census Tract 132.03, Block Group 1	1,327	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	93.4	95.0	34.4
Census Tract 132.03, Block Group 2	873	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.0	99.0	37.9
Census Tract 132.04, Block Group 1	1,174	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.5	96.5	50.7

Docket No. CP16-454-003, et al.

B- 8 -

Census Tract 138.02, Block Group 2	527	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	33.9
Census Tract 138.02, Block Group 3	877	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	92.4	42.3
Census Tract 138.02, Block Group 4	699	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.3	41.1
Census Tract 139.01, Block Group 1	575	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	95.5	46.7
Census Tract 139.01, Block Group 2	1,970	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.1	42.4
Census Tract 139.02, Block Group 1	1,267	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	17.9
Census Tract 139.02, Block Group 2	1,698	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	44.6
Census Tract 139.02, Block Group 3	1,006	3.7	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	94.2	45.9
Census Tract 139.03, Block Group 1	2,284	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	35.1
Census Tract 139.03, Block Group 2	1,647	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	49.0
Census Tract 140.01, Block Group 1	849	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.2	24.8
Census Tract 140.01, Block Group 2	980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	84.2
Census Tract 140.01, Block Group 3	415	3.4	2.9	0.0	0.0	5.8	0.0	0.0	0.0	0.0	8.7	73.3	60.5
Census Tract 140.02, Block Group 1	1,211	9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.4	42.2
Census Tract 140.02, Block Group 2	1,060	9.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.2	58.8
Census Tract 141.01, Block Group 1	782	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	19.9
Census Tract 141.01, Block Group 2	1,021	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
Census Tract 141.01, Block Group 3	1,966	31.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	68.5	17.4
Census Tract 141.01, Block Group 4	1,240	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	35.6
Census Tract 141.02, Block Group 1	2,166	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	45.0
Census Tract 141.02, Block Group 2	642	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
Census Tract 141.02, Block Group 3	978	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.1	59.9
Census Tract 141.03, Block Group 1	1,390	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	19.4
Census Tract 141.03, Block Group 2	388	17.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	83.0	0.0
Census Tract 141.03, Block Group 3	1,508	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.8	59.1
Census Tract 142.01, Block Group 1	1,247	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.4	32.8
Census Tract 142.01, Block Group 2	895	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	23.8
Census Tract 142.02, Block Group 1	1,997	12.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	87.1	13.8
Census Tract 142.02, Block Group 2	1,082	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	44.2
Census Tract 143, Block Group 1	1,786	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.4	88.6	96.0	54.9
Census Tract 143, Block Group 2	1,897	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.6	45.1
Census Tract 143, Block Group 3	1,161	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	92.2	33.3
Census Tract 144.01, Block Group 1	2,806	1.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	98.5	4.8
Census Tract 144.01, Block Group 2	3,855	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	25.1
Census Tract 144.01, Block Group 3	547	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
Census Tract 144.02, Block Group 1	2,742	17.6	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	72.4	3.8
Census Tract 144.02, Block Group 2	890	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	95.2	23.2
Census Tract 144.02, Block Group 3	1,822	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	95.2	13.0
Census Tract 144.03, Block Group 1	3,111	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.1	2.6
Census Tract 144.03, Block Group 2	759	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0	95.4	72.7
Census Tract 144.04, Block Group 1	4,034	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	97.6	22.7
Census Tract 144.04, Block Group 2	884	23.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	76.9	51.8
Census Tract 145.01, Block Group 1	1,609	8.9	0.0	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	84.5	27.9

Docket No. CP16-454-003, et al.

B- 9 -

Census Tract 145.01, Block Group 2	1,606	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	92.2	92.2	2.2
Census Tract 145.01, Block Group 3	1,002	12.1	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.6	87.9	19.7
Census Tract 145.02, Block Group 1	2,096	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.3	98.3	0.0
Census Tract 145.02, Block Group 2	1,098	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	20.1
Census Tract 145.02, Block Group 3	1,837	6.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	93.0	94.0	10.2
Census Tract 9800.01, Block Group 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Census Tract 9801, Block Group 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Census Tract 9900, Block Group 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Willacy County	21,419	10.6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.5	88.2	89.4	26.7
Census Tract 9506, Block Group 1	1,133	16.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	83.9	83.9	31.0
Census Tract 9507, Block Group 1	1,165	32.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	67.7	67.7	43.8
Census Tract 9900, Block Group 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Sources:

Race and Ethnicity Source: U.S. Census Bureau, 2016-2020 American Community Survey 5-Year Estimates, Hispanic or Latino Origin by Race. Table No. B03002. Accessed on May 3, 2022.
Available online at:<https://data.census.gov/cedsci/table?t=Below Poverty Level&tid=ACSDT5Y2020.B03002>

Below Poverty Level Source: U.S. Census Bureau, 2020 ACS Poverty Status in the Past 12 Months by Household Type by Age of Householder. Table No. B17017. Accessed on May 3, 2022.

Available online at:

<https://data.census.gov/cedsci/table?t=Below Poverty Level&tid=ACSDT5Y2020.B17017>

Notes:

^a Percent total minority is calculated by subtracting the percent of White Alone, non-Hispanic from 100 percent.^b Minority or low-income populations exceeding the established thresholds are indicated in red, bold type and blue shading.

TABLE 2.

MINORITY POPULATIONS BY RACES AND ETHNICITY AND LOW-INCOME POPULATIONS WITHIN 50 KILOMETERS OF RIO BRAVO PIPELINE PROJECT'S COMPRESSOR STATION 1

State/County/ Census Tract/Block Group	Total Population	% White Alone Not Hispanic	% Black or African American	% American Indian and Alaska Native	% Asian	% Native Hawaiian and Other Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino Origin (of any race)	% Minority ^a	% Household Below Poverty Level ^b
Compressor Station 1											
TEXAS	---	---	---	---	---	---	---	---	---	---	---
Brooks County	7,100	7.9	0.1	0.0	0.0	0.0	0.0	0.2	91.7	92.1	42.9

Docket No. CP16-454-003, et al.

B- 10 -

TABLE 2.

TABLE 2.											
MINORITY POPULATIONS BY RACES AND ETHNICITY AND LOW-INCOME POPULATIONS WITHIN 50 KILOMETERS OF RIO BRAVO PIPELINE PROJECT'S COMPRESSOR STATION 1											
State/County/ Census Tract/Block Group	Total Population	% White Alone Not Hispanic	% Black or African American	% American Indian and Alaska Native	% Asian	% Native Hawaiian and Other Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino Origin (of any race)	% Minority ^{1a}	% Household Below Poverty Level ^{1b}
Census Tract 9501, Block Group 1	2,217	8.3	0.4	0.0	0.0	0.0	0.0	0.0	91.4	91.7	59.8
Census Tract 9501, Block Group 2	320	2.5	0.0	0.0	0.0	0.0	0.0	0.0	97.5	97.5	46.7
Census Tract 9502, Block Group 1	812	0.9	0.0	0.0	0.0	0.0	0.0	0.0	99.1	99.1	10.0
Census Tract 9502, Block Group 2	168	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	26.3
Census Tract 9502, Block Group 3	658	0.8	0.0	0.0	0.0	0.0	0.0	0.0	99.2	99.2	59.6
Census Tract 9502, Block Group 4	2,149	16.8	0.0	0.0	0.0	0.0	0.0	0.0	83.2	83.2	40.2
Census Tract 9502, Block Group 5	776	0.0	0.0	0.0	0.0	0.0	0.0	1.9	98.1	100.0	24.6
Duval County	11,194	9.3	1.4	0.0	0.0	0.0	0.0	0.1	89.3	90.7	21.9
Census Tract 9501, Block Group 1	790	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	71.2
Census Tract 9501, Block Group 2	180	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	15.8
Census Tract 9501, Block Group 3	1,543	4.5	0.0	0.0	0.0	0.0	0.0	0.0	95.5	95.5	28.8
Census Tract 9501, Block Group 4	826	11.1	0.0	0.0	0.0	0.0	0.0	0.0	88.9	88.9	6.8
Census Tract 9501, Block Group 5	1,444	10.0	10.5	0.0	0.0	0.0	0.0	0.6	78.9	90.0	29.3
Census Tract 9505, Block Group 1	505	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	39.6
Census Tract 9505, Block Group 2	893	5.8	0.0	0.0	0.0	0.0	0.0	0.0	94.2	94.2	7.3
Census Tract 9505, Block Group 3	2,254	2.0	0.0	0.0	0.0	0.0	0.0	0.0	98.0	98.0	19.9
Jim Hogg County	5,187	7.1	0.0	0.0	0.0	0.0	0.0	0.2	92.6	92.9	23.8
Census Tract 9504, Block Group 1	721	1.9	0.3	0.0	0.0	0.0	0.0	0.0	97.8	98.1	4.4
Jim Wells County	40,796	17.8	0.7	0.2	0.5	0.0	0.0	0.4	80.4	82.2	19.8
Census Tract 9501.01, Block Group 2	566	97.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.0	8.1
Census Tract 9501.01, Block Group 3	985	6.0	0.0	0.0	0.0	0.0	0.0	0.0	94.0	94.0	0.0

Docket No. CP16-454-003, et al.

B-11 -

TABLE 2.

MINORITY POPULATIONS BY RACES AND ETHNICITY AND LOW-INCOME POPULATIONS WITHIN 50 KILOMETERS OF RIO BRAVO PIPELINE PROJECT'S COMPRESSOR STATION 1

State/County/ Census Tract/Block Group	Total Population	% White Alone Not Hispanic	% Black or African American	% American Indian and Alaska Native	% Asian	% Native Hawaiian and Other Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino Origin (of any race)	% Minority ^{/a}	% Household Below Poverty Level ^{/b}
Census Tract 9501.02, Block Group 3	752	42.0	0.0	0.0	0.0	0.0	0.0	0.0	58.0	58.0	39.3
Block Group 1, Census Tract 9502.01	720	11.5	0.0	0.0	0.0	0.0	0.0	0.0	88.5	88.5	34.3
Census Tract 9502.01, Block Group 2	1,349	37.1	0.0	0.0	0.0	0.0	0.0	0.0	62.9	62.9	19.8
Census Tract 9502.01, Block Group 3	1,539	25.6	0.0	0.0	0.0	0.0	0.0	0.0	74.4	74.4	35.2
Census Tract 9502.02, Block Group 1	929	19.6	0.8	0.0	0.0	0.0	0.0	0.0	79.7	80.4	17.8
Census Tract 9502.02, Block Group 2	1,368	23.4	0.0	0.0	0.0	0.0	0.0	0.0	76.6	76.6	6.9
Census Tract 9502.02, Block Group 3	2,400	21.2	0.0	0.0	0.0	0.0	0.0	0.0	78.8	78.8	20.6
Census Tract 9503.01, Block Group 1	1,138	10.6	0.0	0.0	0.0	0.0	0.0	0.0	89.4	89.4	33.1
Census Tract 9503.01, Block Group 2	2,841	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	26.2
Census Tract 9503.02, Block Group 1	816	10.9	0.0	0.0	0.0	0.0	0.0	0.0	89.1	89.1	0.0
Census Tract 9503.02, Block Group 2	1,639	6.8	5.9	0.0	0.0	0.0	0.0	0.0	85.2	93.2	12.3
Census Tract 9503.03, Block Group 1	1,234	15.6	0.0	0.0	0.0	0.0	0.0	0.0	74.1	84.4	0.0
Census Tract 9503.03, Block Group 2	323	76.5	0.0	0.0	0.0	0.0	0.0	0.0	23.5	23.5	0.0
Census Tract 9504, Block Group 1	853	21.5	3.2	0.0	0.0	0.0	2.3	0.0	70.3	78.5	14.7
Census Tract 9504, Block Group 2	1,156	7.8	0.2	0.0	0.0	0.0	0.0	0.0	91.0	92.2	14.8
Census Tract 9504, Block Group 3	1,064	23.6	2.3	0.0	0.0	0.0	0.0	0.0	74.2	76.4	15.8
Census Tract 9505, Block Group 1	756	3.0	0.0	0.0	0.0	0.0	0.0	0.0	97.0	97.0	28.2
Census Tract 9505, Block Group 2	1,225	14.4	0.0	0.0	0.0	0.0	0.0	0.0	85.6	85.6	36.4
Census Tract 9505, Block Group 3	1,406	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.9	100.0	2.7
Census Tract 9505, Block Group 4	1,066	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	63.5
Census Tract 9505, Block Group 5	769	8.5	0.0	0.0	0.0	0.0	0.0	0.0	91.5	91.5	66.0

Docket No. CP16-454-003, et al.

B- 12 -

TABLE 2.

MINORITY POPULATIONS BY RACES AND ETHNICITY AND LOW-INCOME POPULATIONS WITHIN 50 KILOMETERS OF RIO BRAVO PIPELINE PROJECT'S COMPRESSOR STATION 1

State/County/ Census Tract/Block Group	Total Population	% White Alone Not Hispanic	% Black or African American	% American Indian and Alaska Native	% Asian	% Native Hawaiian and Other Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino Origin (of any race)	% Minority ^{/a}	% Household Below Poverty Level ^{/b}
Census Tract 9506, Block Group 1	1,427	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.9	100.0	41.6
Census Tract 9506, Block Group 2	303	5.0	0.0	0.0	0.0	0.0	0.0	0.0	95.0	95.0	29.3
Census Tract 9506, Block Group 3	843	1.4	0.0	0.0	0.0	0.0	0.0	0.0	98.6	98.6	16.9
Census Tract 9506, Block Group 4	973	10.1	0.0	0.0	0.0	0.0	0.0	0.0	88.6	89.9	38.1
Census Tract 9507, Block Group 1	619	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	28.6
Census Tract 9507, Block Group 2	502	5.0	1.4	0.0	0.0	0.0	0.0	0.0	92.2	95.0	4.7
Census Tract 9507, Block Group 3	1,443	10.9	0.0	0.0	0.0	0.0	0.0	0.0	89.1	89.1	5.7
Census Tract 9507, Block Group 4	841	44.4	0.0	0.0	0.0	0.0	0.0	0.0	55.6	55.6	9.1
Kenedy County	391	3.1	0.0	0.0	0.3	0.0	0.0	0.0	96.7	96.9	3.1
Census Tract 9501, Block Group 1	391	3.1	0.0	0.0	0.0	0.0	0.0	0.0	96.7	96.9	3.1
Kleberg County	30,725	20.0	3.0	0.1	2.3	0.0	0.2	1.4	73.0	80.0	26.5
Census Tract 201.01, Block Group 1	1,156	25.8	0.0	0.0	0.0	0.0	0.0	0.3	73.9	74.2	14.7
Census Tract 201.01, Block Group 2	1,088	64.2	2.0	0.0	0.0	0.0	0.0	0.0	33.7	35.8	5.0
Census Tract 201.01, Block Group 3	782	62.3	0.4	0.0	0.0	0.0	0.0	1.5	34.5	37.7	7.5
Census Tract 201.02, Block Group 1	1,587	11.5	0.0	0.0	0.0	0.0	0.0	0.0	88.5	88.5	27.4
Census Tract 201.02, Block Group 2	871	51.3	1.4	0.0	0.0	0.0	0.0	0.0	47.3	48.7	13.4
Census Tract 202, Block Group 1	783	4.1	0.0	0.0	0.0	0.0	0.0	0.0	95.9	95.9	57.3
Census Tract 202, Block Group 2	769	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	63.6
Census Tract 202, Block Group 3	1,513	0.0	2.9	0.0	0.0	0.0	0.0	0.0	97.1	100.0	61.2
Census Tract 202, Block Group 4	1,044	2.1	1.5	0.0	0.0	0.0	0.0	0.0	96.4	97.9	24.0
Census Tract 202, Block Group 5	535	2.1	0.0	0.0	0.0	0.0	0.0	0.0	96.8	97.9	48.1

Docket No. CP16-454-003, et al.

B- 13 -

TABLE 2.

MINORITY POPULATIONS BY RACES AND ETHNICITY AND LOW-INCOME POPULATIONS WITHIN 50 KILOMETERS OF RIO BRAVO PIPELINE PROJECT'S COMPRESSOR STATION 1

State/County/ Census Tract/Block Group	Total Population	% White Alone Not Hispanic	% Black or African American	% American Indian and Alaska Native	% Asian	% Native Hawaiian and Other Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino Origin (of any race)	% Minority ^{/a}	% Household Below Poverty Level ^{/b}
Census Tract 203.01, Block Group 1	2,057	6.8	2.8	0.0	0.0	0.0	0.0	0.0	80.8	93.2	42.9
Census Tract 203.01, Block Group 2	750	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	14.0
Census Tract 203.02, Block Group 1	1,876	17.8	7.2	0.0	0.2	0.0	0.5	0.0	71.4	82.2	72.3
Census Tract 203.02, Block Group 2	619	36.5	0.0	0.0	0.0	0.0	0.0	0.0	63.5	63.5	0.0
Census Tract 203.02, Block Group 3	1,458	1.5	0.0	0.0	0.0	0.0	0.0	0.0	98.5	98.5	33.5
Census Tract 203.02, Block Group 4	960	22.5	14.6	0.0	0.0	0.0	0.0	0.2	62.7	77.5	28.1
Census Tract 204.01, Block Group 1	1,565	31.1	0.0	0.0	0.0	0.0	2.0	1.2	64.7	68.9	8.3
Census Tract 204.01, Block Group 2	1,028	16.1	1.6	0.0	0.0	0.0	0.0	7.9	69.8	83.9	20.4
Census Tract 204.01, Block Group 3	641	10.3	0.0	0.0	0.0	0.0	0.0	5.3	82.5	89.7	0.0
Census Tract 204.02, Block Group 1	619	2.4	17.0	0.0	0.0	0.0	0.0	12.1	68.5	97.6	32.1
Census Tract 204.02, Block Group 2	893	18.5	0.0	0.0	0.0	0.0	0.0	1.7	79.8	81.5	32.3
Census Tract 204.02, Block Group 3	1,103	27.9	0.0	0.0	0.0	0.0	0.0	0.0	72.1	72.1	12.3
Census Tract 205.01, Block Group 1	2,466	33.3	4.3	0.0	0.6	0.0	0.0	7.4	43.9	66.7	16.1
Census Tract 205.01, Block Group 2	1,404	35.5	0.6	0.0	0.0	0.0	1.1	0.0	61.1	64.5	4.7
Census Tract 205.02, Block Group 1	1,610	15.5	16.8	0.0	0.0	0.0	0.0	0.0	64.1	84.5	38.2
Census Tract 205.02, Block Group 2	1,021	25.2	0.0	0.0	0.0	0.0	0.0	0.0	73.2	74.8	8.8
Census Tract 205.02, Block Group 3	527	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	30.9
Census Tract 56.05, Block Group 1	1209	1.7	0.0	0.0	0.0	0.0	0.0	0.0	98.3	98.3	31.8
Census Tract 56.05, Block Group 2	1123	2.0	0.0	0.0	0.0	0.0	0.0	0.0	98.0	98.0	46.5
Census Tract 56.06, Block Group 1	693	15.7	0.0	0.0	0.0	0.0	0.0	0.0	84.3	84.3	37.5
Census Tract 58.03, Block Group 1	611	23.4	0.0	0.0	0.0	0.0	0.0	0.0	76.6	76.6	5.0

Docket No. CP16-454-003, et al.

B- 14 -

TABLE 2.

MINORITY POPULATIONS BY RACES AND ETHNICITY AND LOW-INCOME POPULATIONS WITHIN 50 KILOMETERS OF RIO BRAVO PIPELINE PROJECT'S COMPRESSOR STATION 1

State/County/ Census Tract/Block Group	Total Population	% White Alone Not Hispanic	% Black or African American	% American Indian and Alaska Native	% Asian	% Native Hawaiian and Other Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino Origin (of any race)	% Minority ^{/a}	% Household Below Poverty Level ^{/b}
Census Tract 58.03, Block Group 2	962	52.1	1.9	0.0	0.0	0.0	0.0	0.0	46.0	47.9	19.7
Census Tract 58.03, Block Group 4	1,154	27.1	0.0	0.0	0.0	0.0	0.0	0.0	72.9	72.9	1.9
Census Tract 58.04, Block Group 2	1,041	34.5	0.6	0.0	0.0	0.0	0.0	0.0	64.4	65.5	13.5
Census Tract 59, Block Group 1	473	16.9	0.0	0.0	0.0	0.0	0.0	0.0	83.1	83.1	32.8
Census Tract 59, Block Group 2	1,180	12.7	0.0	0.0	0.0	0.0	0.0	0.0	87.3	87.3	36.2
Census Tract 59, Block Group 3	1,129	14.1	0.0	0.0	0.0	0.0	0.0	0.0	85.9	85.9	36.9
Census Tract 60, Block Group 1	722	4.4	0.0	0.0	0.0	0.0	0.0	0.0	95.6	95.6	22.6
Census Tract 60, Block Group 2	976	19.3	0.0	0.0	0.0	0.0	0.0	0.0	80.7	80.7	8.5
Census Tract 60, Block Group 3	738	32.0	0.0	0.0	0.0	0.0	0.0	0.0	68.0	68.0	6.4
Census Tract 61, Block Group 1	885	4.2	11.6	0.0	0.0	0.0	0.0	9.9	74.2	95.8	29.0
Census Tract 61, Block Group 2	1,252	22.3	0.0	0.0	0.0	0.0	0.0	0.0	77.7	77.7	17.4
Census Tract 61, Block Group 3	1,420	38.5	13.7	0.0	0.0	0.0	0.0	0.6	47.2	61.5	33.1

Sources:

Race and Ethnicity Source: U.S. Census Bureau, 2016-2020 American Community Survey 5-Year Estimates, Hispanic or Latino Origin by Race. Table No. B03002: Hispanic or Latino Origin by Race. Accessed on May 10, 2022.

Available online at: <https://data.census.gov/cedsci/all?q=b03002>

Below Poverty Level Source: U.S. Census Bureau, 2016-2020 ACS Poverty Status in the Past 12 Months by Household Type by Age of Householder. Table No. B17017: Poverty Status in the Past 12 Months by Household Type by Age of Householder. Accessed on May 10, 2022. Available online at: <https://data.census.gov/cedsci/table?q=B17017%3A%20POVERTY%20STATUS%20IN%20THE%20PAST%2012%20MONTHS%20BY%20HOUSEHOLD%20TYPE%20BY%20AGE%20OF%20HOUSEHOLDER&tid=ACSDT5Y2020.B17017>

Docket No. CP16-454-003, et al.

B- 15 -

TABLE 3. MINORITY POPULATIONS BY RACES AND ETHNICITY AND LOW-INCOME POPULATIONS FOR THE RIO BRAVO PIPELINE FACILITIES											
State/County/ Census Tract/Block Group	Total Population	% White Alone Not Hispanic	% Black or African American	% American Indian and Alaska Native	% Asian	% Native Hawaiian and Other Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino Origin (of any race)	% Minority	% Household Below Poverty Level
Meter Station HS1, and Meter Station HS2											
TEXAS	--	--	--	--	--	--	--	--	--	--	--
Kleberg County	30,725	20.0	3.0	0.1	2.3	0.0	0.2	1.4	73.0	80.0	26.5
Census Tract 201.02, Block Group 2	871	51.3	1.4	0.0	0.0	0.0	0.0	0.0	47.3	48.7	13.4
Pipeline Facilities											
TEXAS	--	--	--	--	--	--	--	--	--	--	--
Cameron County	422,135	8.8	0.4	0.1	0.7	0.0	0.0	0.2	89.8	91.2	25.7
Census Tract 101.01, Block Group 2	1,622	18.4	0.0	0.0	0.0	0.0	0.0	0.0	80.3	81.6	7.3
Census Tract 101.02, Block Group 1	361	66.2	0.0	0.0	0.0	0.0	0.0	8.0	20.2	33.8	15.8
Census Tract 101.02, Block Group 2	1,112	36.3	0.0	0.0	0.0	0.0	0.0	0.0	63.7	63.7	52.4
Census Tract 122.02, Block Group 2	1,067	9.1	0.0	0.0	0.0	0.0	0.1	0.5	90.3	90.9	13.0
Census Tract 122.02, Block Group 3	995	5.7	0.0	0.0	0.0	0.0	0.0	0.0	81.2	94.3	15.6
Census Tract 127, Block Group 2	599	5.8	0.0	0.0	0.0	0.0	0.0	0.0	94.2	94.2	48.5
Census Tract 142.02, Block Group 1	1,997	12.9	0.0	0.0	0.0	0.0	0.0	0.0	87.1	87.1	13.8
Census Tract 142.02, Block Group 2	1,082	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	44.2
Jim Wells County	40,796	17.8	0.7	0.2	0.5	0.0	0.0	0.4	80.4	82.2	19.8
Census Tract 9502.02, Block Group 1	929	19.6	0.8	0.0	0.0	0.0	0.0	0.0	79.7	80.4	17.8
Kenedy County	391	3.1	0.0	0.0	0.3	0.0	0.0	0.0	96.7	96.9	3.1
Census Tract 9501, Block Group 1	391	3.1	0.0	0.0	0.0	0.0	0.0	0.0	96.7	96.9	3.1
Kleberg County	30,725	20.0	3.0	0.1	2.3	0.0	0.2	1.4	73.0	80.0	26.5
Census Tract 201.02, Block Group 2	871	51.3	1.4	0.0	0.0	0.0	0.0	0.0	47.3	48.7	13.4
Nueces County	362,151	29.0	3.6	0.2	2.0	0.1	0.1	0.9	64.1	71.0	16.4

Docket No. CP16-454-003, et al.

B- 16 -

TABLE 3. MINORITY POPULATIONS BY RACES AND ETHNICITY AND LOW-INCOME POPULATIONS FOR THE RIO BRAVO PIPELINE FACILITIES											
State/County/ Census Tract/Block Group	Total Population	% White Alone Not Hispanic	% Black or African American	% American Indian and Alaska Native	% Asian	% Native Hawaiian and Other Pacific Islander	% Some Other Race	% Two or More Races	% Hispanic or Latino Origin (of any race)	% Minority	% Household Below Poverty Level
Census Tract 54.06, Block Group 1	1,095	44.7	0.0	0.0	0.0	0.0	0.0	0.0	51.0	55.3	0.0
Census Tract 54.06, Block Group 2	1,058	43.3	8.8	0.0	0.0	0.0	0.0	0.0	47.9	56.7	5.7
Willacy County	21,419	10.6	0.7	0.0	0.0	0.0	0.0	0.5	88.2	89.4	26.7
Census Tract 9506, Block Group 1	1,133	16.1	0.0	0.0	0.0	0.0	0.0	0.0	83.9	83.9	31.0
Census Tract 9507, Block Group 1	1,165	32.3	0.0	0.0	0.0	0.0	0.0	0.0	67.7	67.7	43.8
Census Tract 9507, Block Group 2	944	3.4	0.0	0.0	0.0	0.0	0.0	0.0	96.6	96.6	40.7
Meter Stations HS3 and HS4											
TEXAS	--	--	--	--	--	--	--	--	--	--	--
Jim Wells County	40,796	17.8	0.7	0.2	0.5	0.0	0.0	0.4	80.4	82.2	19.8
Census Tract 9502.02, Block Group 1 ^a	929	19.6	0.8	0.0	0.0	0.0	0.0	0.0	79.7	80.4	17.8
Kleberg County	30,725	20.0	3.0	0.1	2.3	0.0	0.2	1.4	73.0	80.0	26.5
Census Tract 201.02 , Block Group 2 ^b	871	51.3	1.4	0.0	0.0	0.0	0.0	0.0	47.3	48.7	13.4
Port of Brownsville Work Temporary Storage/Parking Area											
TEXAS	--	--	--	--	--	--	--	--	--	--	--
Cameron County	422,135	8.8	0.4	0.1	0.7	0.0	0.0	0.2	89.8	91.2	25.7
Census Tract 142.02, Block Group 2	1,082	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	44.2
Census Tract 127, Block Group 2	599	5.8	0.0	0.0	0.0	0.0	0.0	0.0	94.2	94.2	48.5
Port Isabel Temporary Storage Area											
TEXAS	--	--	--	--	--	--	--	--	--	--	--
Cameron County	422,135	8.8	0.4	0.1	0.7	0.0	0.0	0.2	89.8	91.2	25.7
Census Tract 123.04, Block Group 4	786	7.1	0.0	0.0	8.8	0.0	0.0	0.0	84.1	92.9	42.0
Census Tract 123.05, Block Group 1	3,079	70.6	4.4	0.0	2.2	0.0	0.0	1.2	21.6	29.4	10.0

Docket No. CP16-454-003, et al.

B- 17 -

Census Tract 123.04, Block Group 1	538	52.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.4	47.4	33.7
Census Tract 123.04, Block Group 3	1,219	42.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	56.2	57.3	10.0
Census Tract 123.04, Block Group 2	2,289	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	93.8	93.8	40.0
Contractor Yard 1													
Willacy County	21,419	10.6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.5	88.2	89.4	26.7
Census Tract 9503, Block Group 1	1,830	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.5	90.5	13.2
Census Tract 9505, Block Group 1	1,344	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	91.3	91.3	27.9
Census Tract 9505, Block Group 2	1,538	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	87.4	90.7	17.4
Census Tract 9504, Block Group 1	2,489	18.9	4.6	0.0	0.0	0.0	0.0	0.0	0.0	1.3	75.2	81.1	28.5
Contractor Yard 2													
Kenedy County	391	3.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	96.7	96.9	3.1
Census Tract 9501, Block Group 1	391	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.7	96.9	3.1
Contractor Yard 3													
Cameron County	422,135	8.8	0.4	0.1	0.0	0.7	0.0	0.0	0.0	0.2	89.8	91.2	25.7
Census Tract 144.01, Block Group 1	2,806	1.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	98.5	99.0	4.8
Census Tract 144.01, Block Group 3	547	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.00	100.00	0.0
Census Tract 144.04, Block Group 2	884	23.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	76.9	76.9	51.8
Census Tract 142.02, Block Group 1	1,997	12.9	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	87.1	87.1	13.8
Census Tract 144.02, Block Group 1	2,742	17.6	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	72.4	82.4	3.8
Census Tract 144.02, Block Group 2	890	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	95.2	95.2	23.2
Census Tract 124.04, Block Group 2	2,015	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	96.4	97.2	57.7

Sources:

Race and Ethnicity Source: U.S. Census Bureau, 2016-2020 American Community Survey 5-Year Estimates, Hispanic or Latino Origin by Race. Table No. B03002. Accessed on May 3, 2022. Available online at:

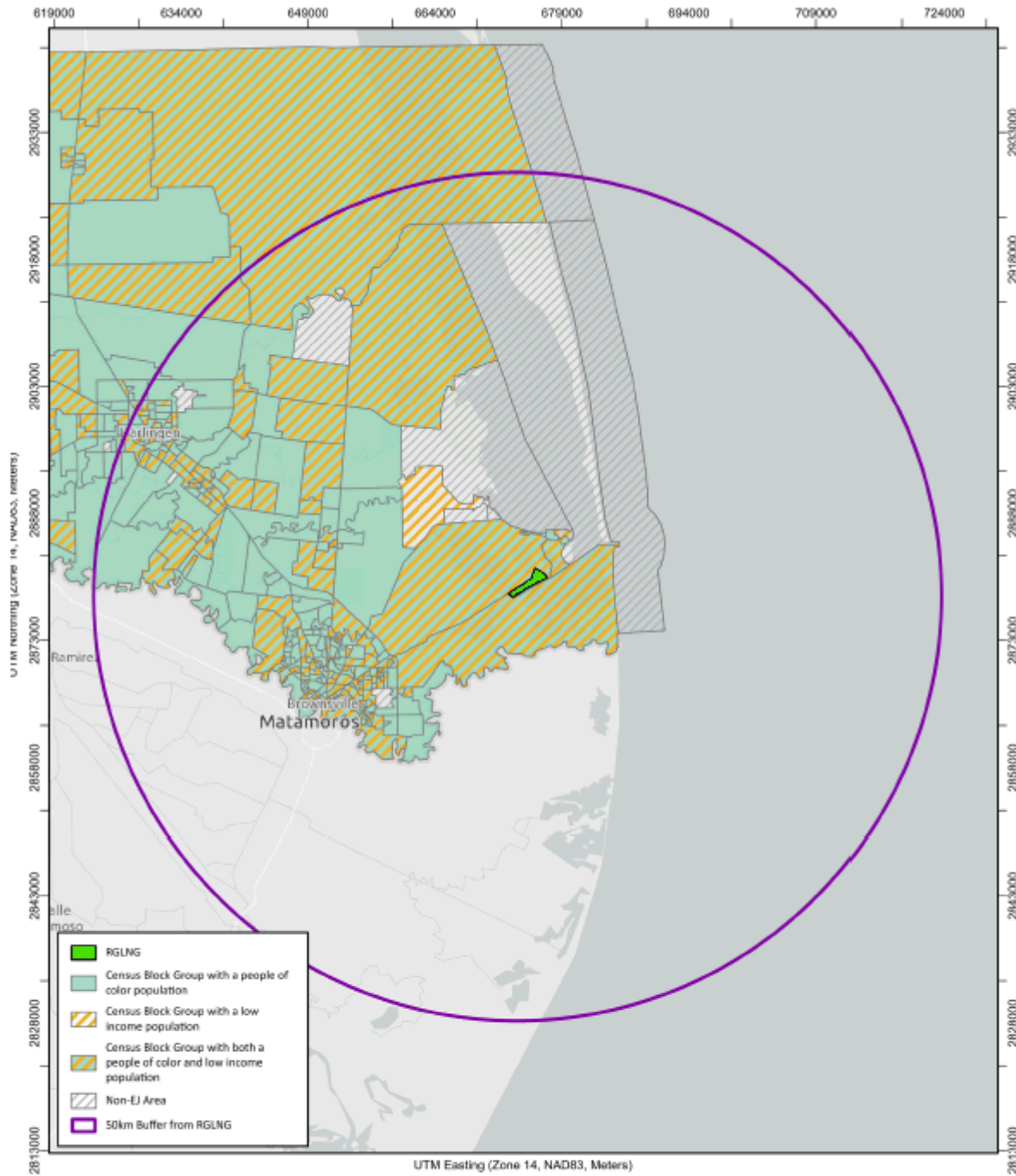
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Below Poverty Level Source: U.S. Census Bureau, 2020 ACS Poverty Status in the Past 12 Months by Household Type by Age of Householder. Table No. B17017. Accessed on May 3, 2022. Available online at:

<https://data.census.gov/cedsci/table?q=B17017%3A%20POVERTY%20STATUS%20IN%20THE%20PAST%2012%20MONTHS%20BY%20HOUSEHOLD%20TYPE%20BY%20AGE%20OF%20HOUSEHOLDER&q=0500000US48061%241500000.48489%241500000&tid=ACSDT5Y2020.B17017>

Notes:

^a Meter Station HS4 is in this block group.^b Meter Station HS3 is in this block group.



Far-Field View of Census Blocks within 50 km of RGLNG

Rio Grande LNG LLC
Response to FERC Environmental Information Request

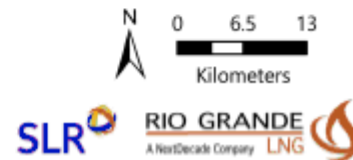
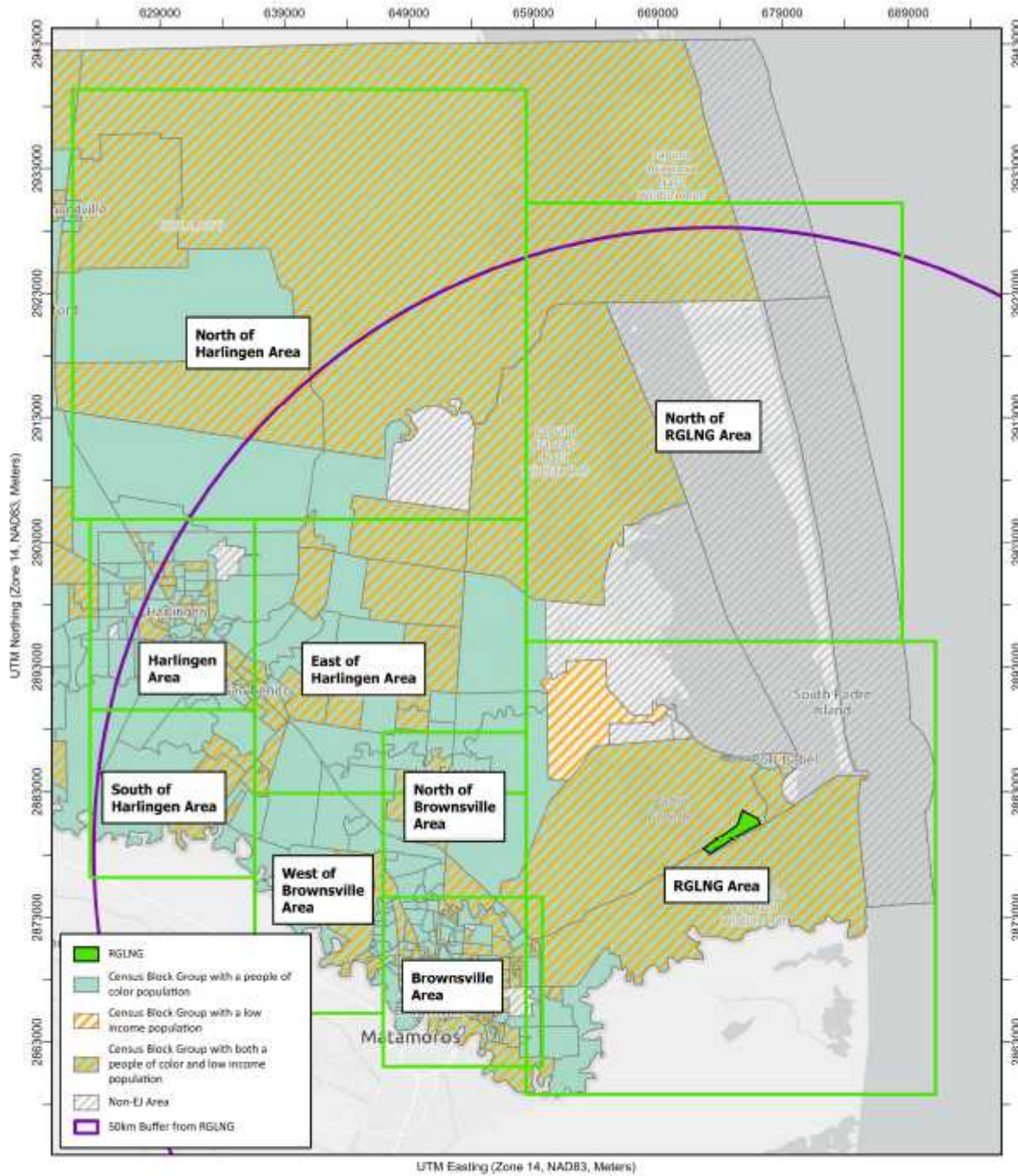


Figure 1



Far-Field View of Census Blocks within 50 km of RGLNG (map key)

Rio Grande LNG LLC
Response to FERC Environmental Information Request

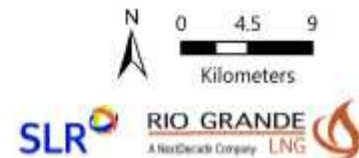
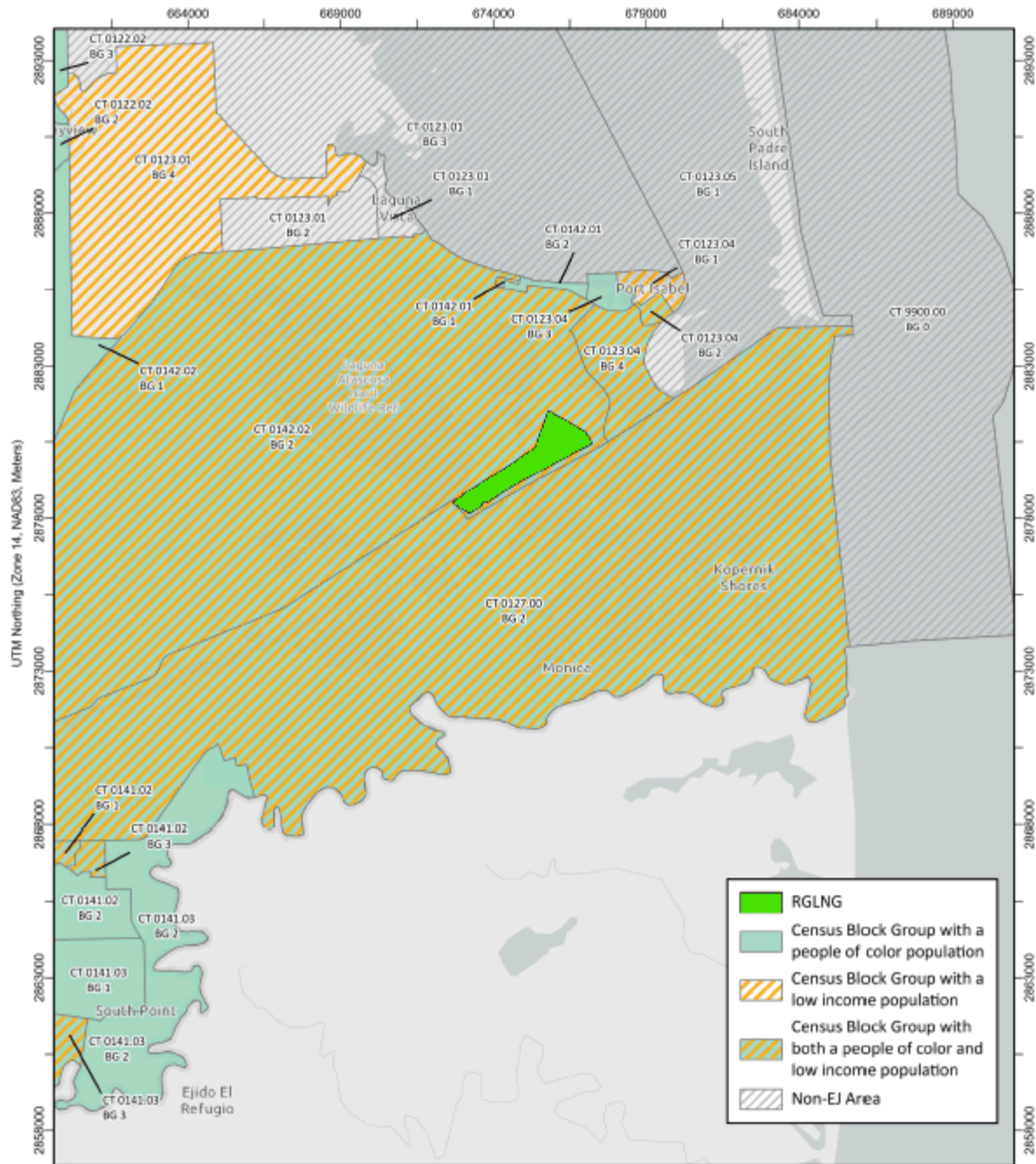


Figure 2



Census Blocks: RGLNG Area

Rio Grande LNG LLC
Response to FERC Environmental Information Request

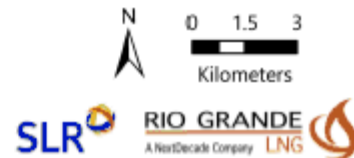
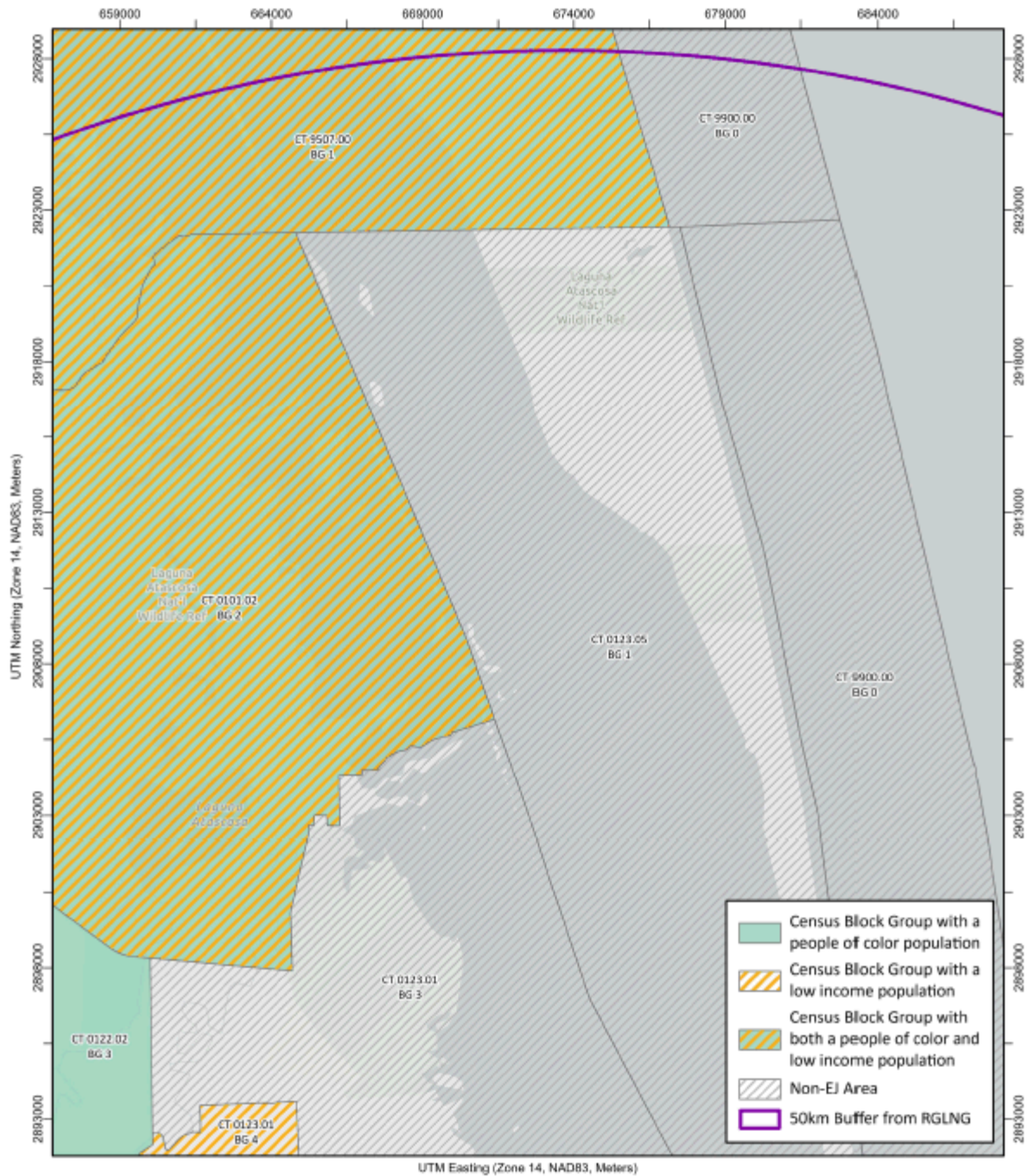


Figure 3



Census Blocks: North of RGLNG Area

Rio Grande LNG LLC

Response to FERC Environmental Information Request

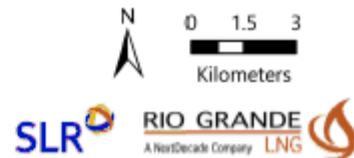
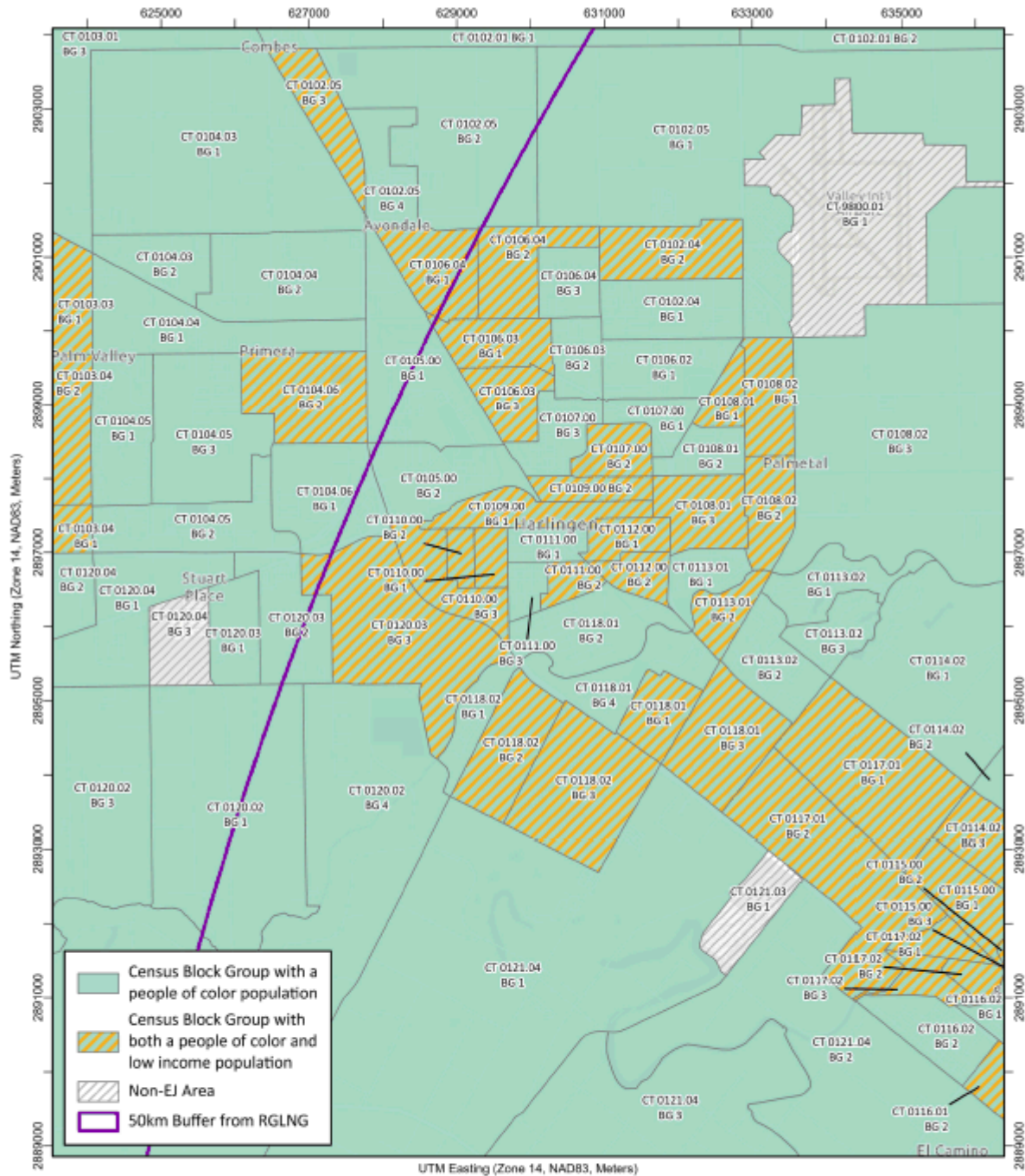


Figure 4



Census Blocks: Harlingen

Rio Grande LNG LLC
Response to FERC Environmental Information Request

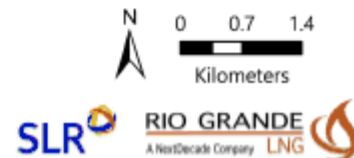
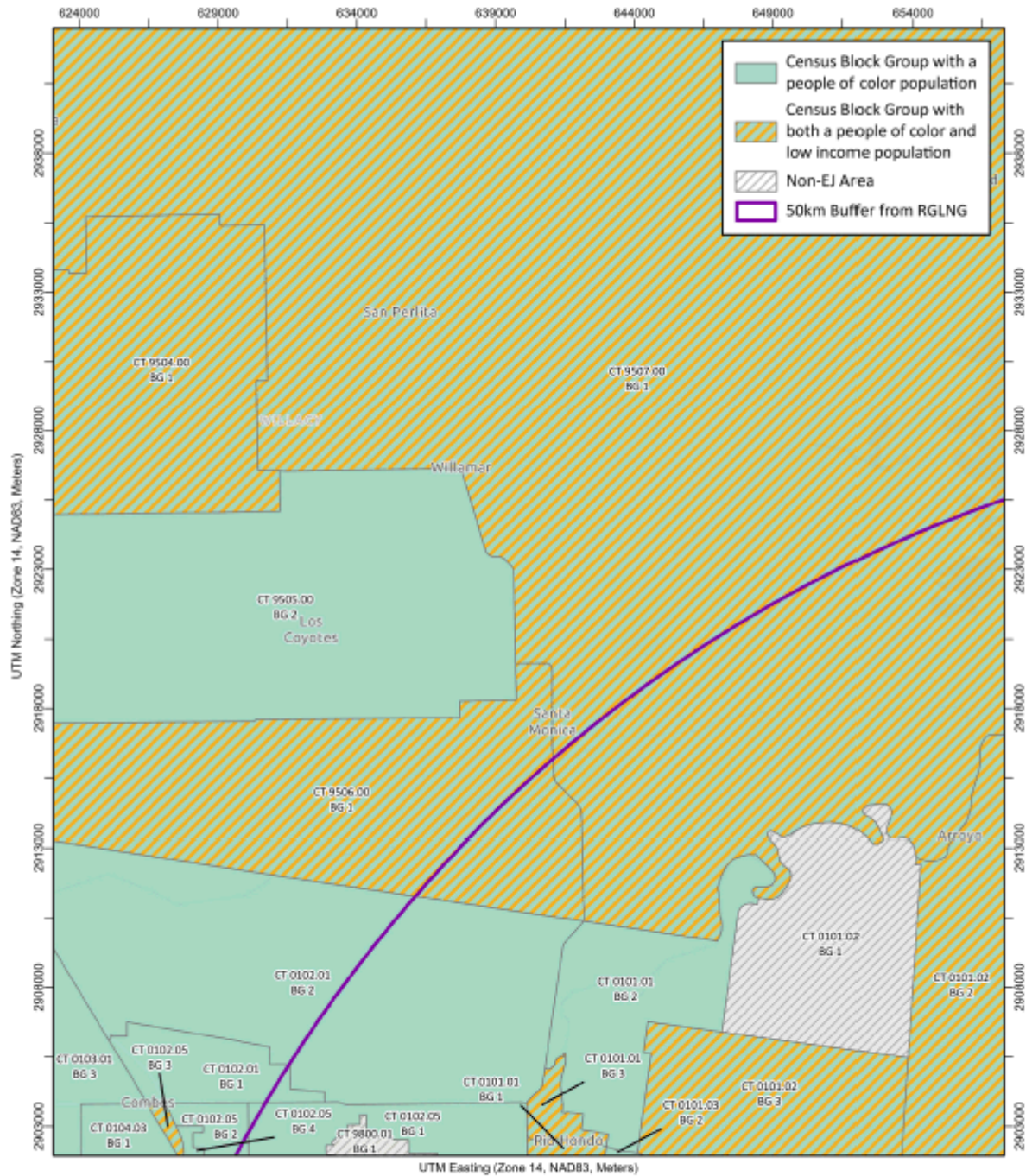


Figure 5



Census Blocks: North of Harlingen

Rio Grande LNG LLC
Response to FERC Environmental Information Request

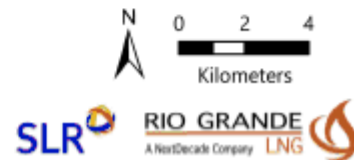
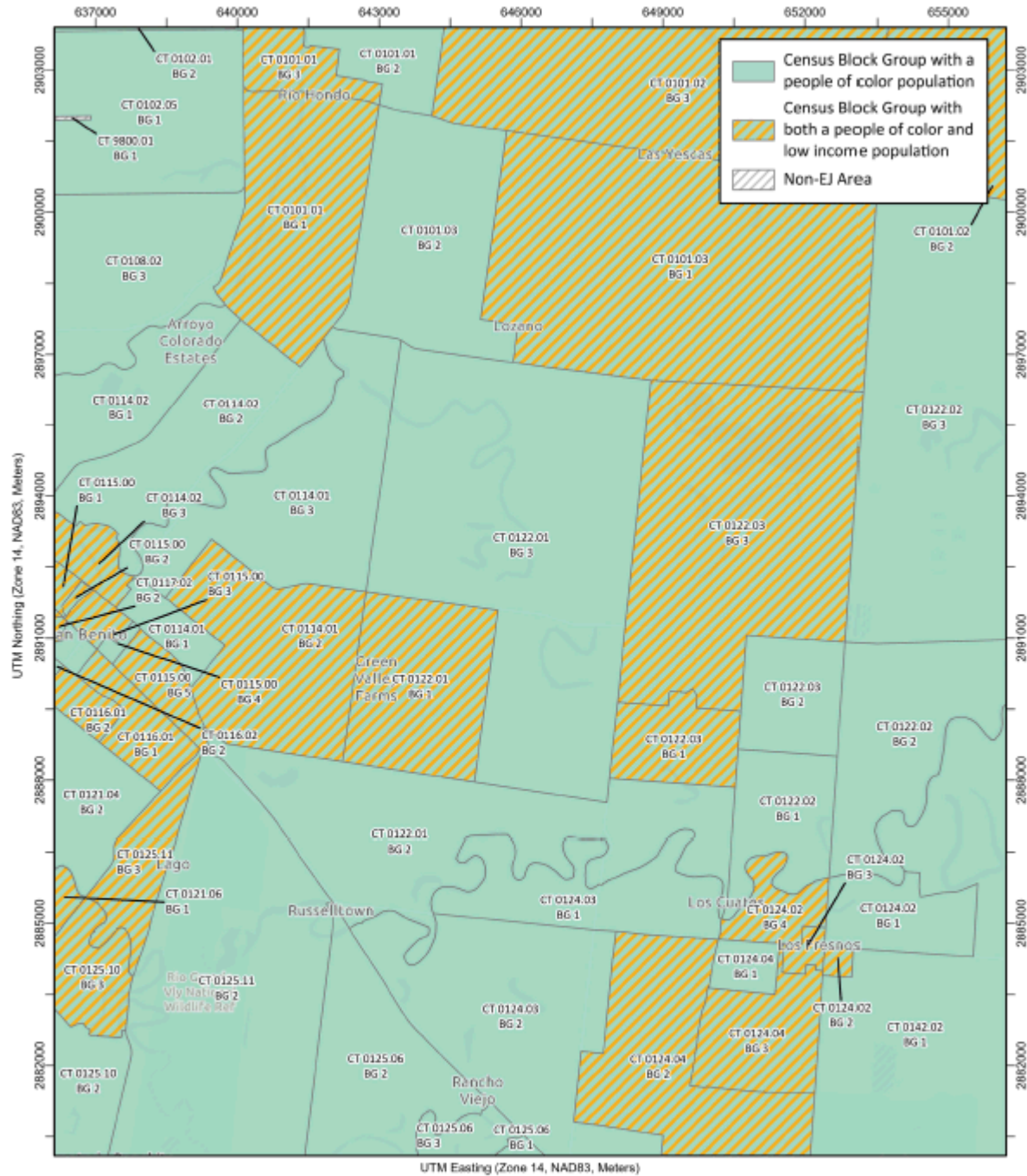


Figure 6



Census Blocks: East of Harlingen

Rio Grande LNG LLC

Response to FERC Environmental Information Request

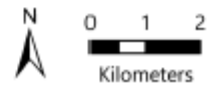
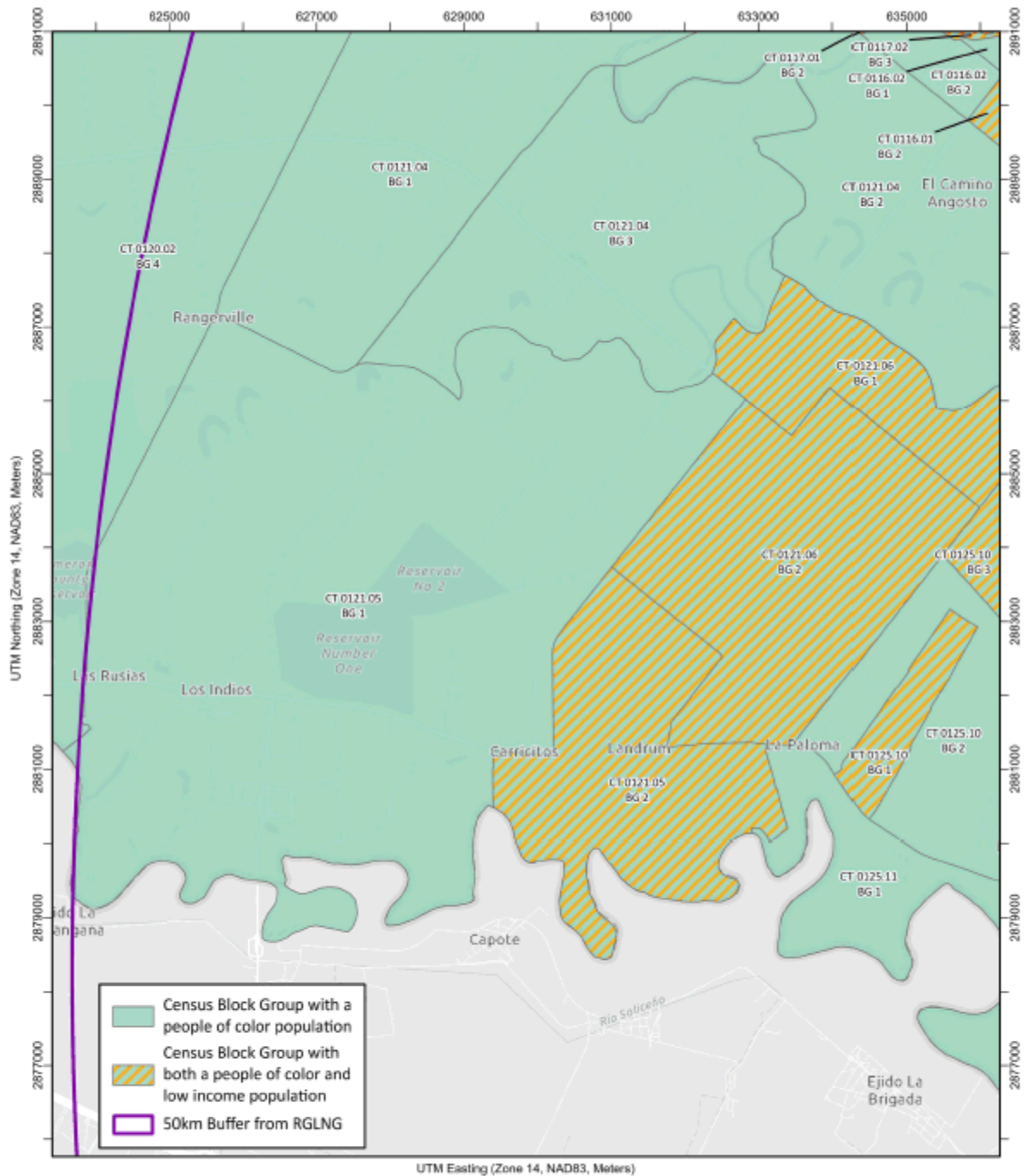


Figure 7



Census Blocks: South of Harlingen

Rio Grande LNG LLC
Response to FERC Environmental Information Request

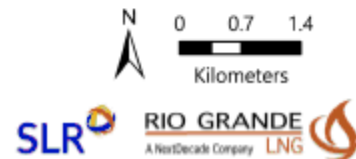


Figure 8

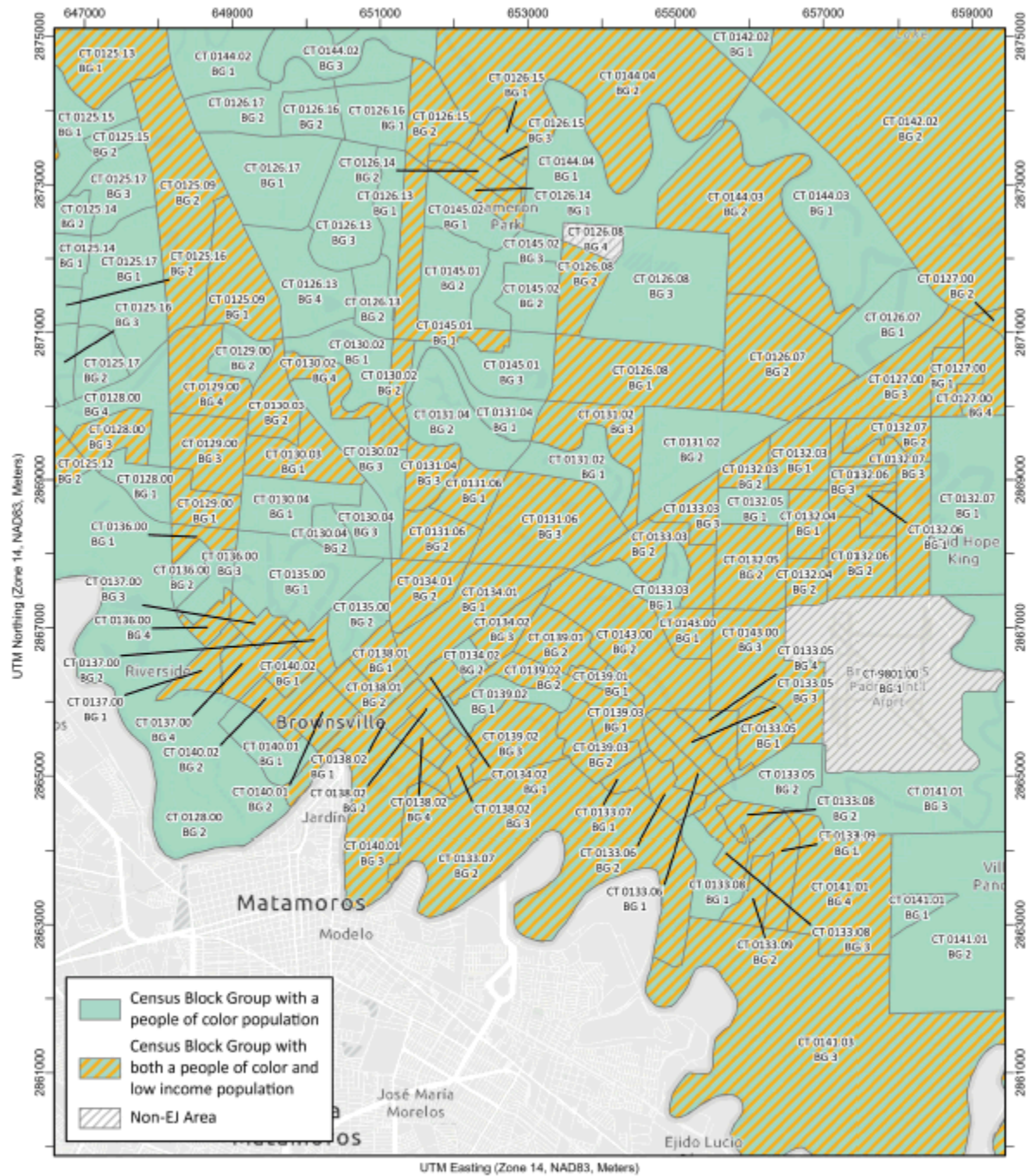
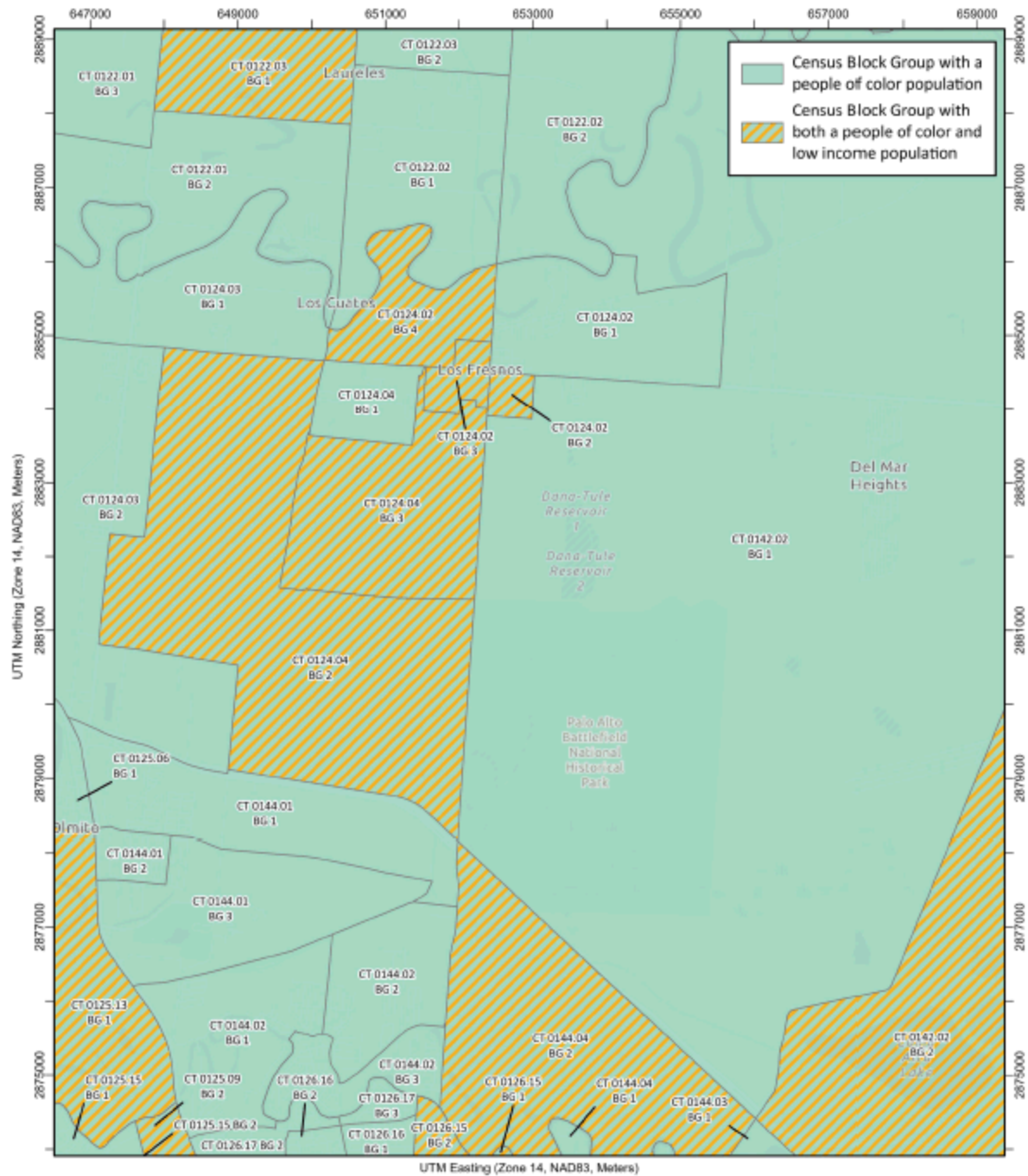


Figure 9



Census Blocks: North of Brownsville Area

Rio Grande LNG LLC

Response to FERC Environmental Information Request

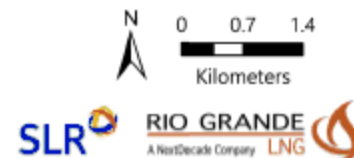
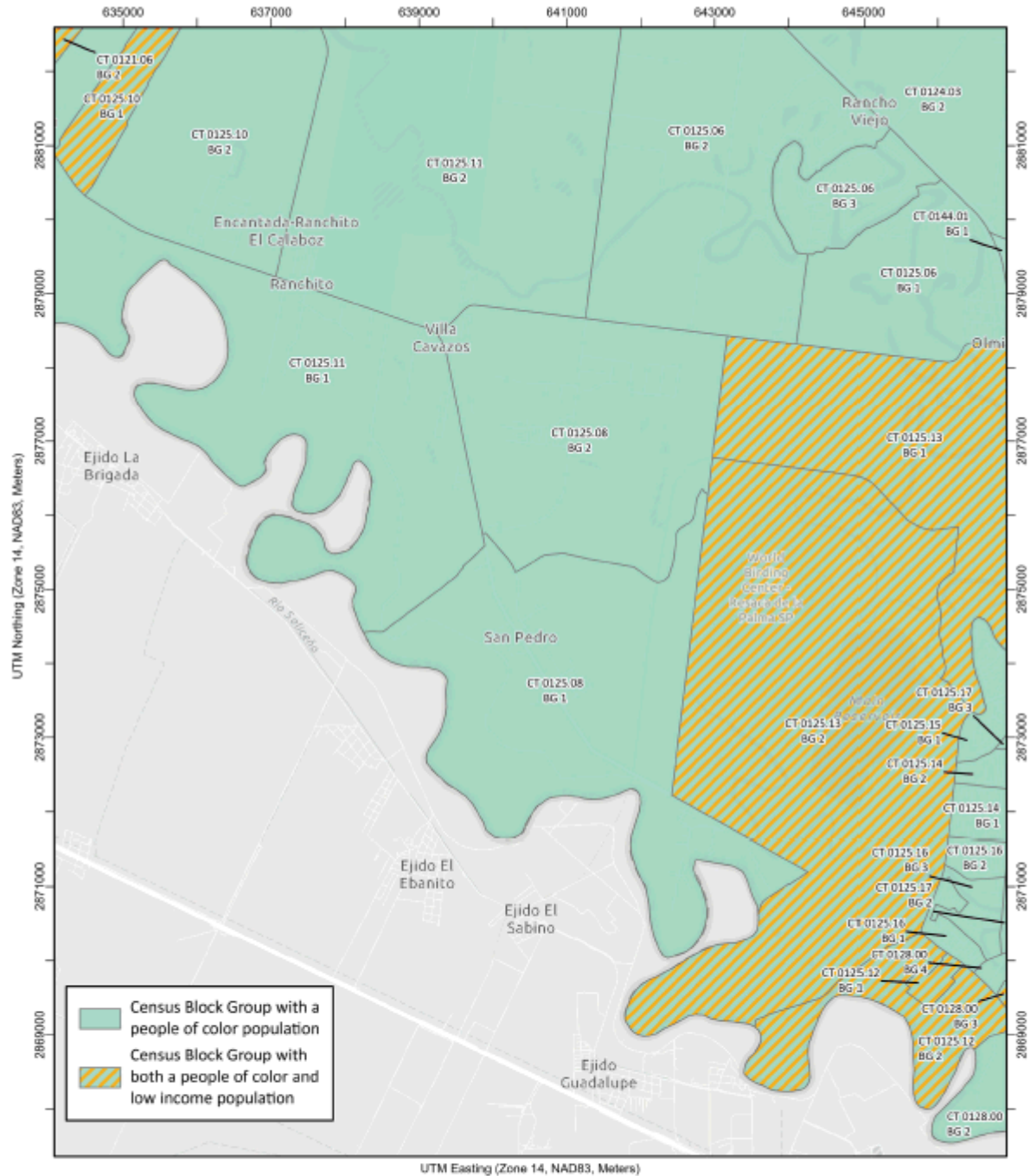


Figure 10



Census Blocks: West of Brownsville

Rio Grande LNG LLC
Response to FERC Environmental Information Request

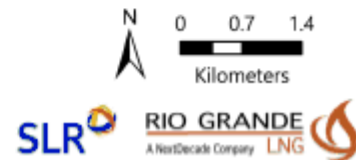


Figure 11

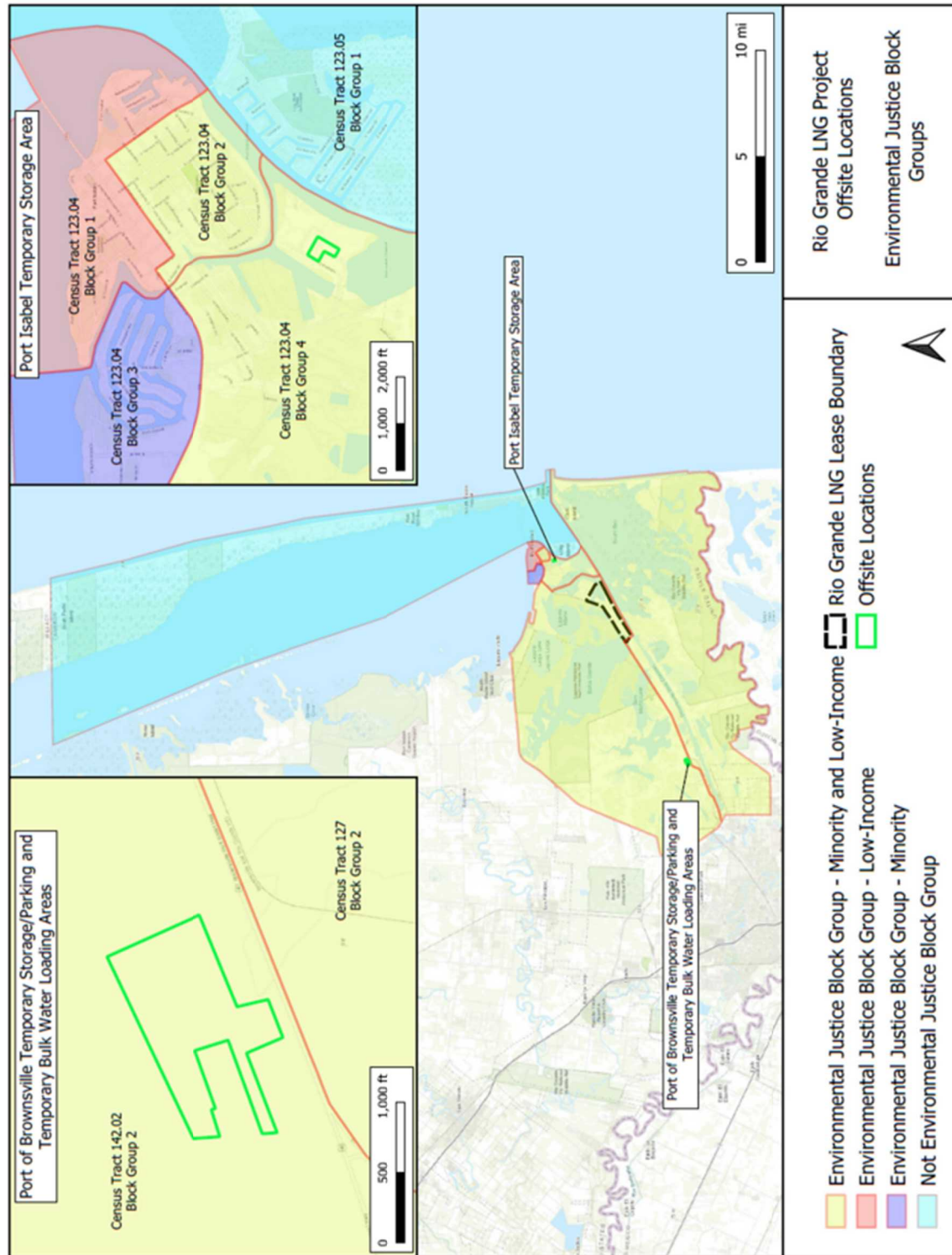


Figure 12



Figure 13

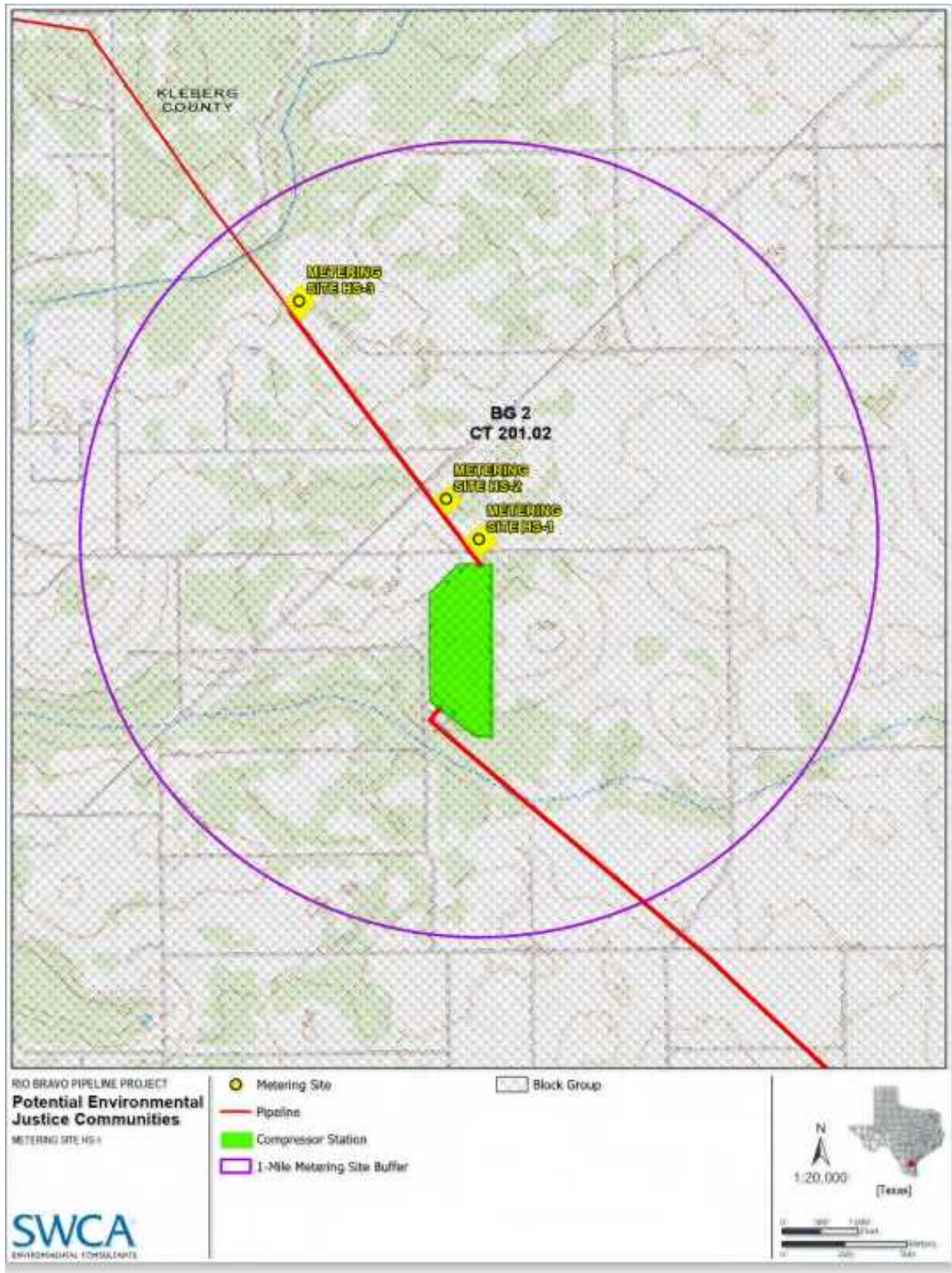


Figure 14

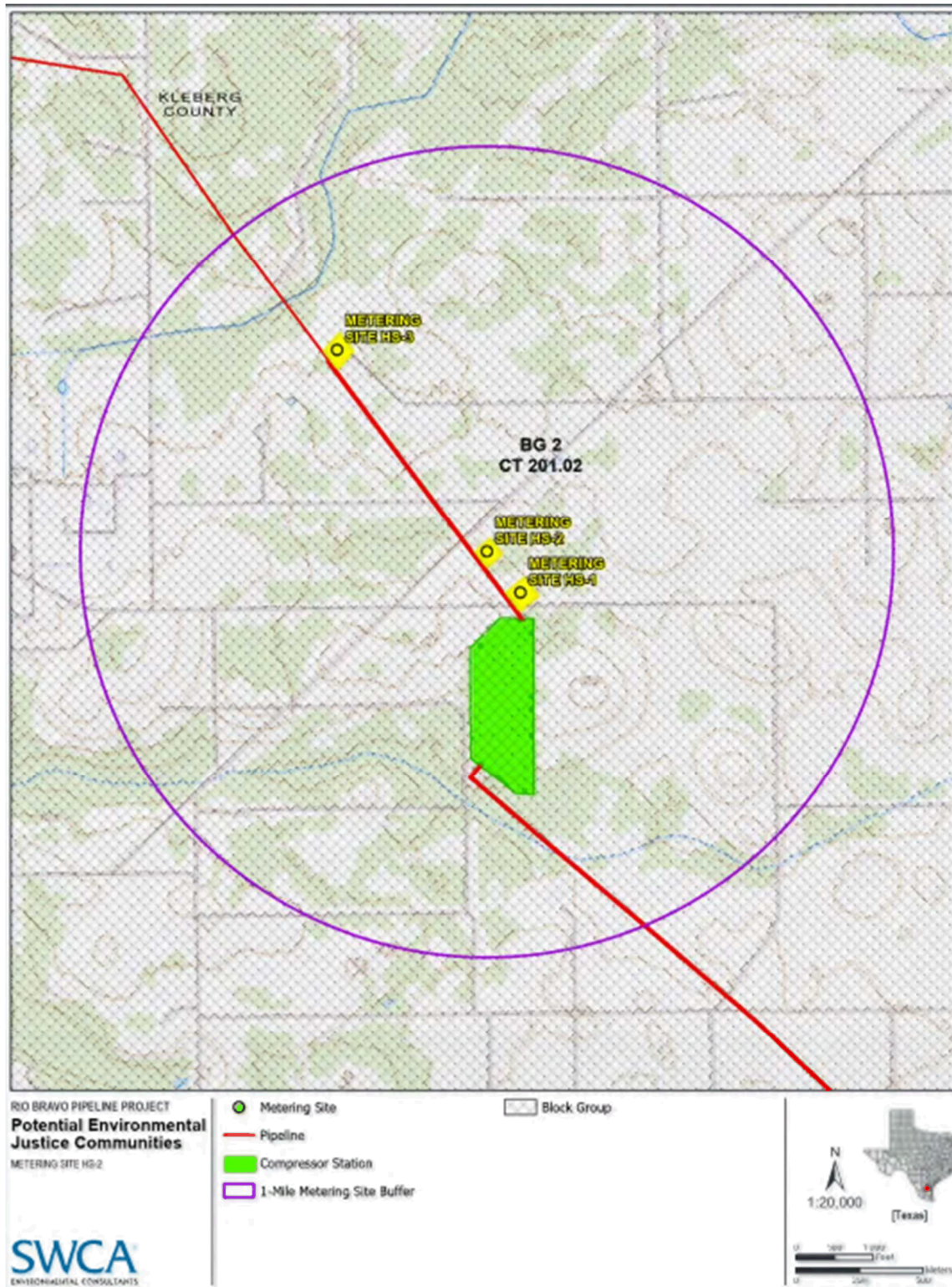


Figure 15

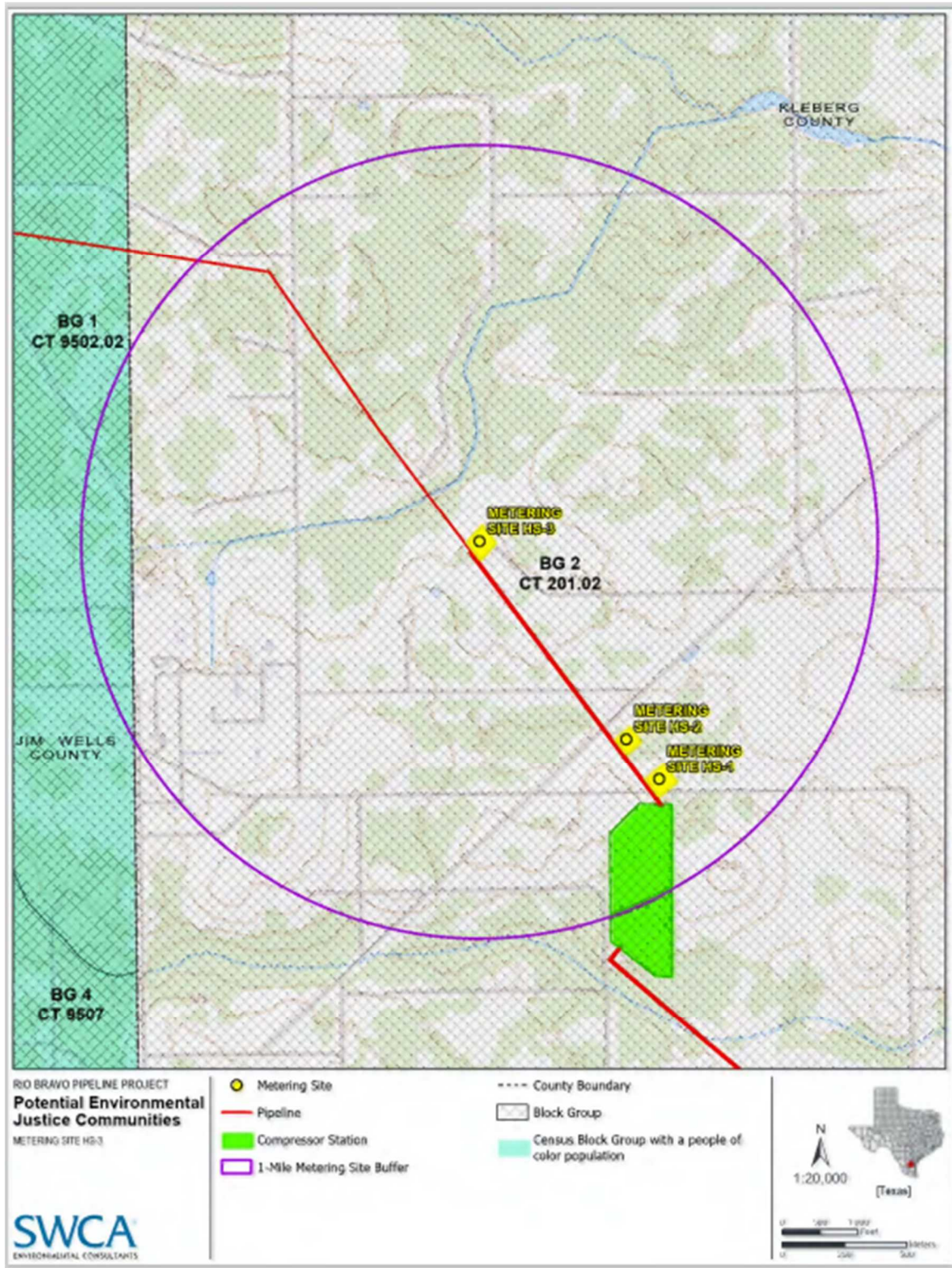


Figure 16

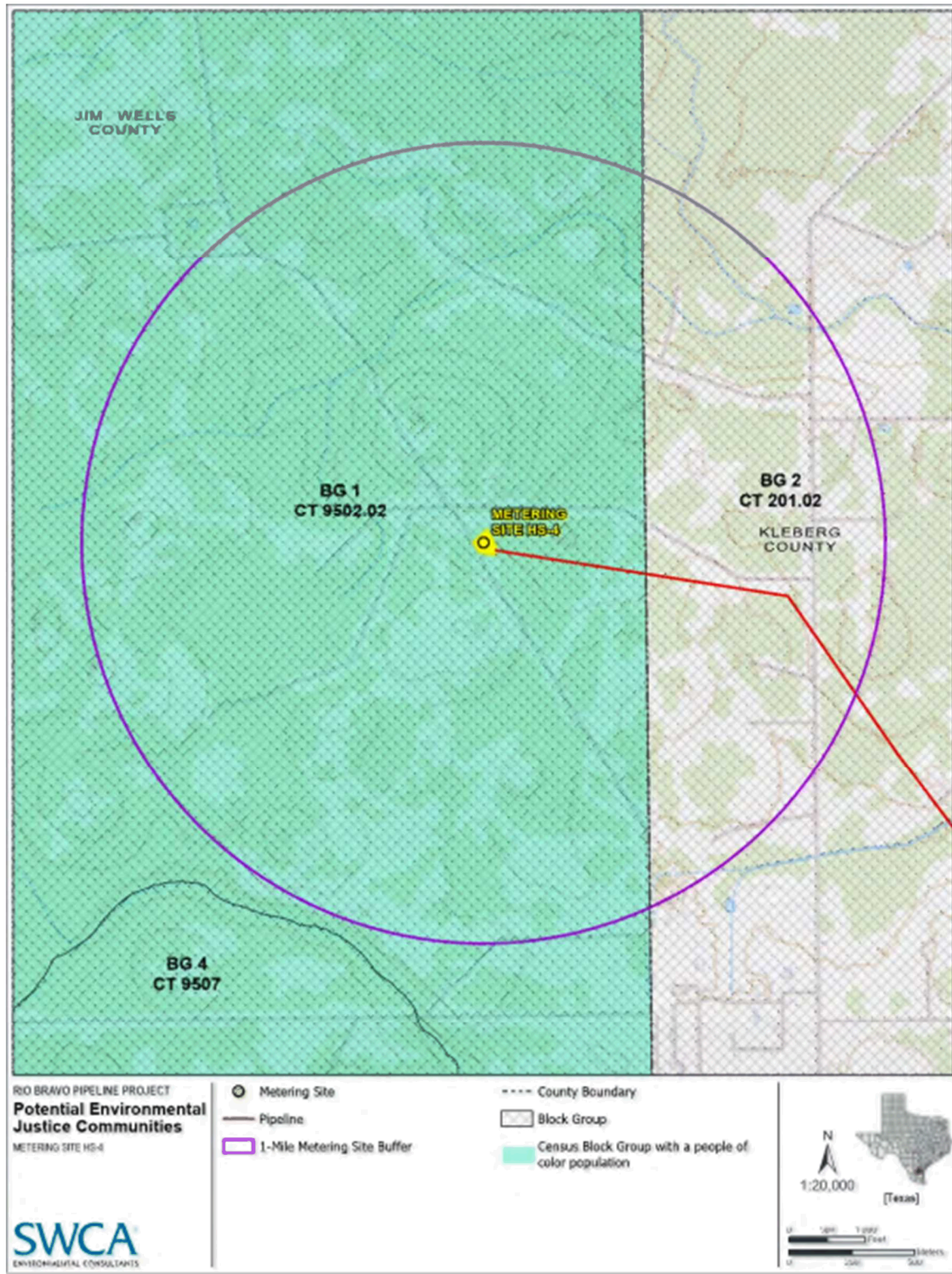


Figure 17

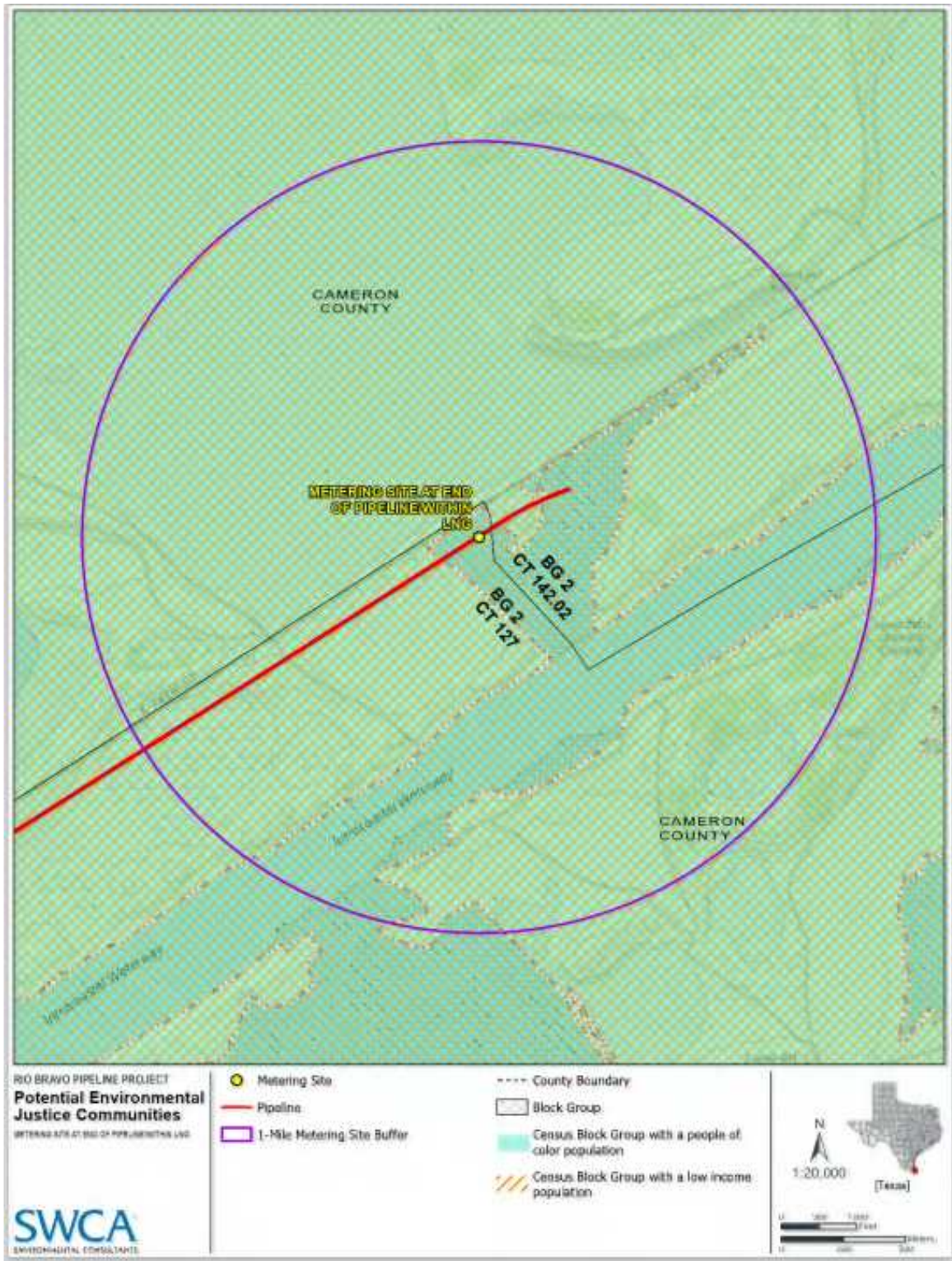


Figure 18

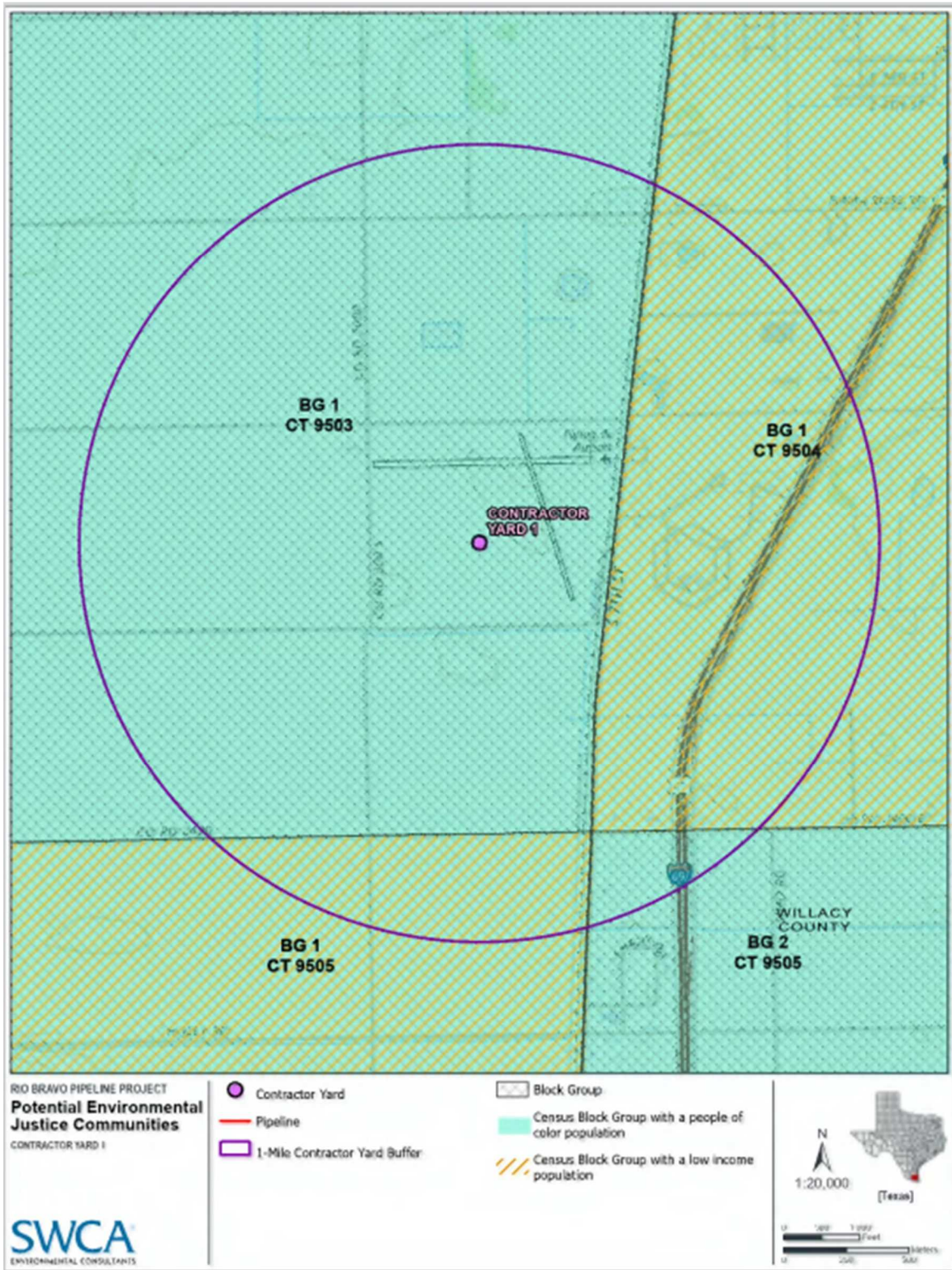


Figure 19

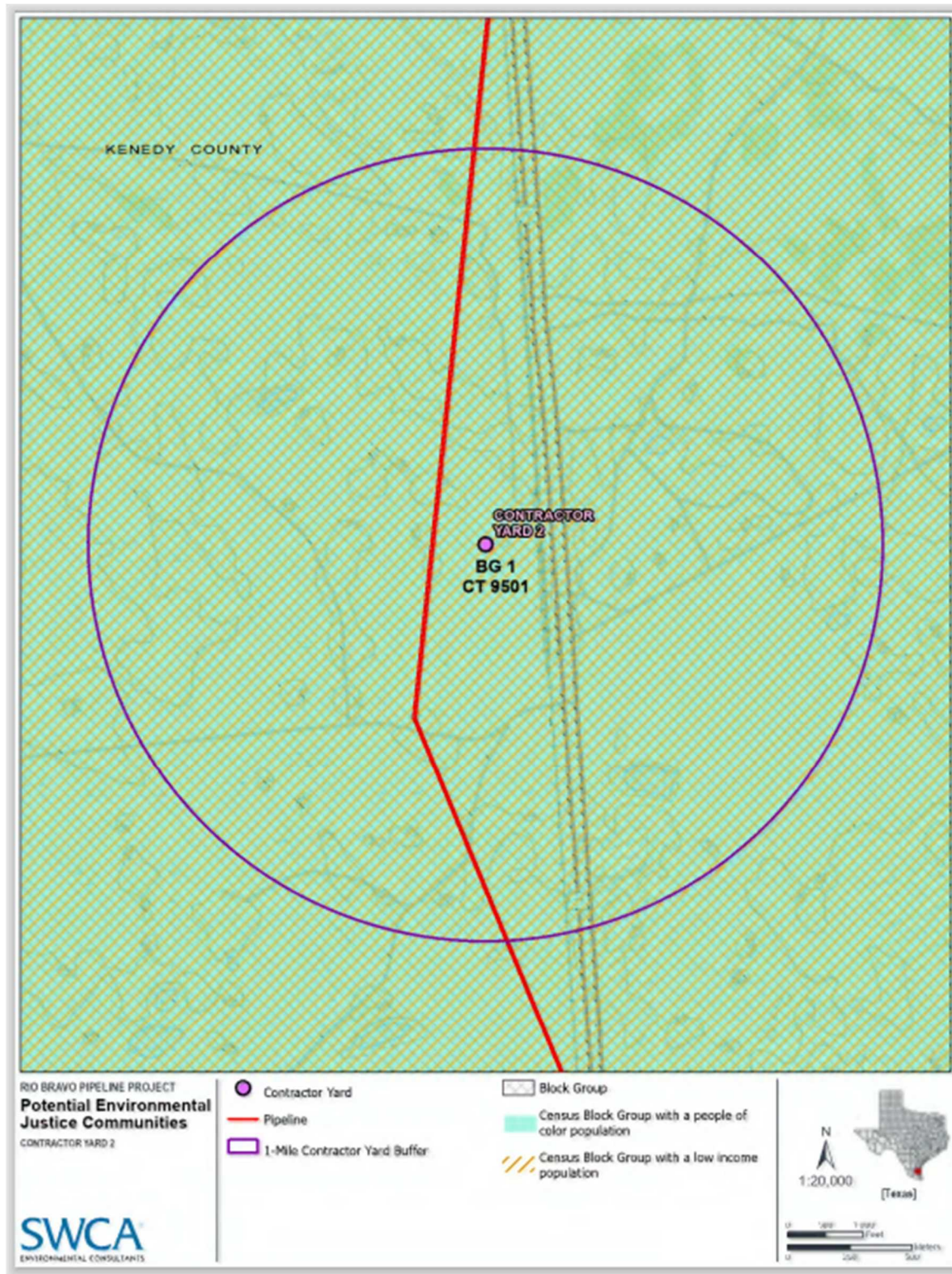


Figure 20

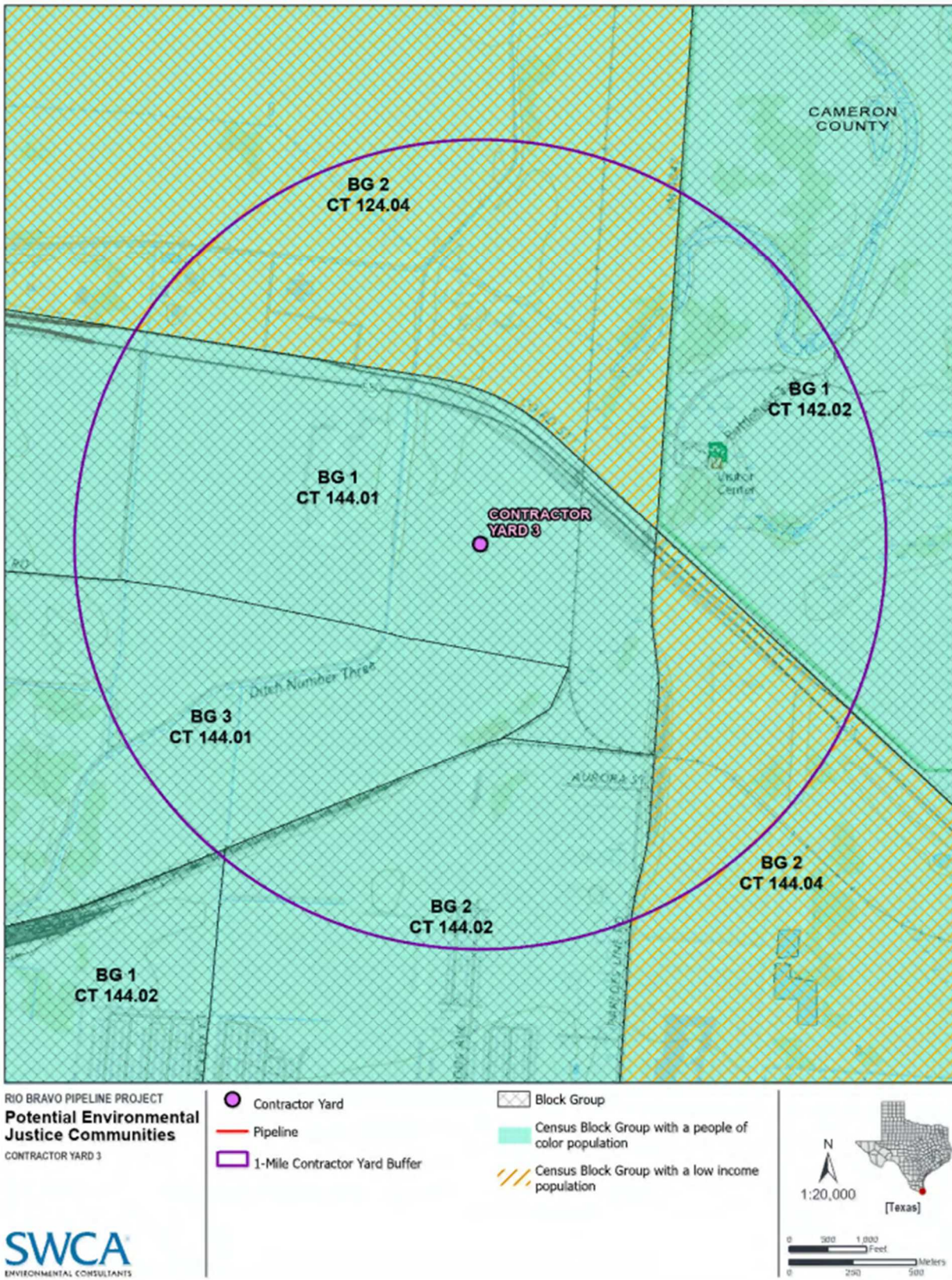


Figure 21

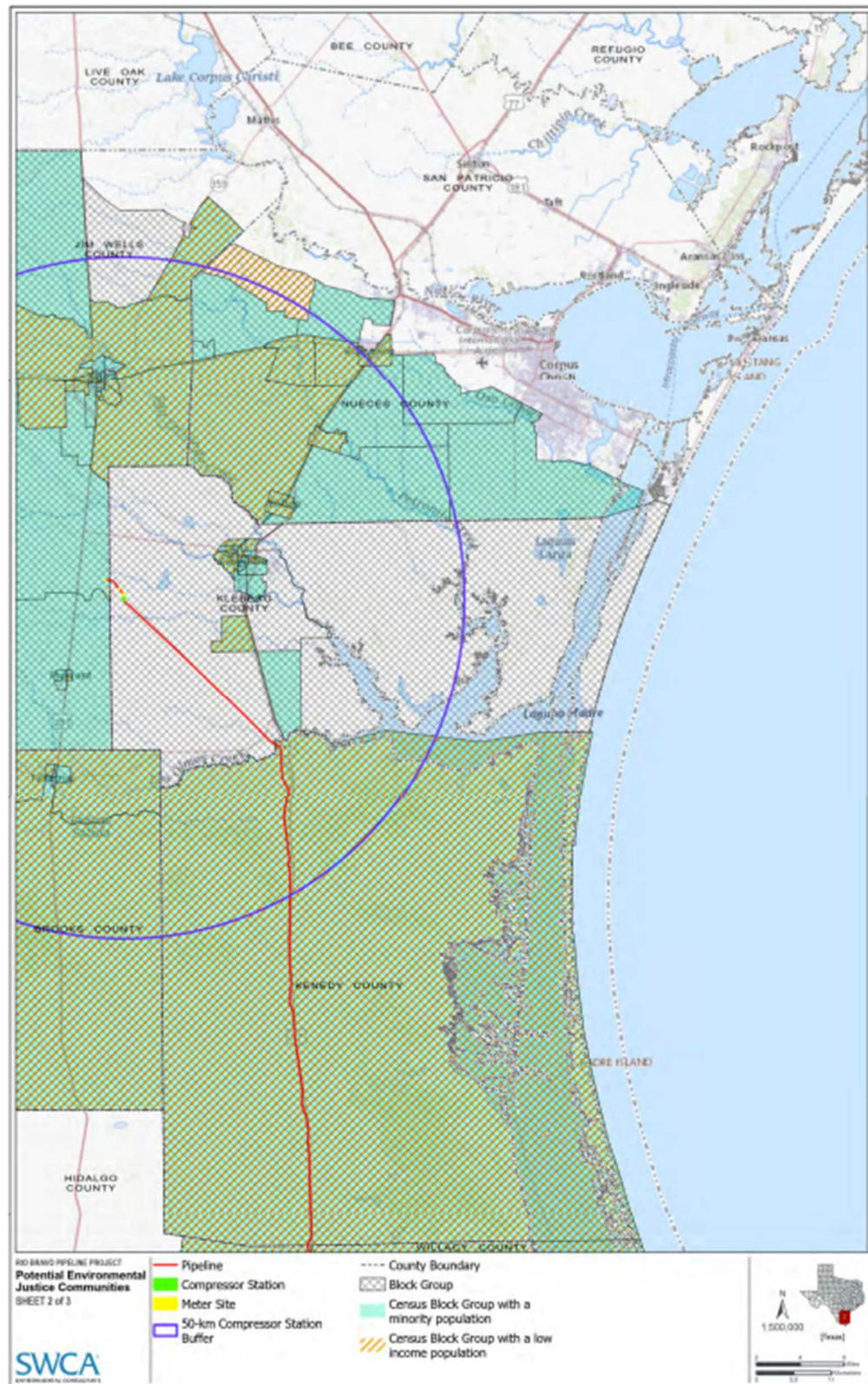


Figure 22

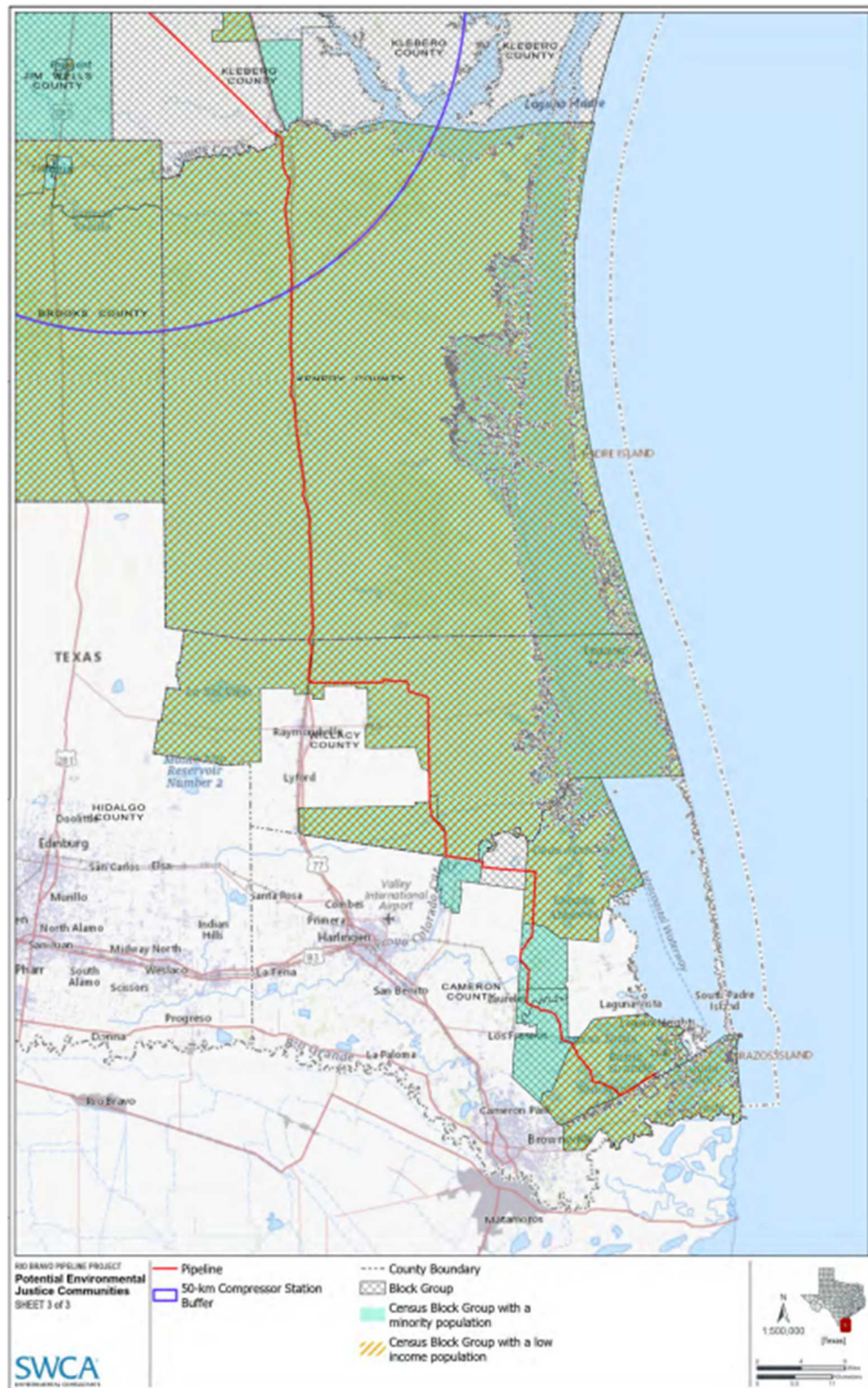


Figure 23

Appendix C

Commission Staff's Environmental Justice Analysis of Potential Public Safety Impacts and Emergency Response Plans for Rio Grande LNG Terminal and Liquefied Natural Gas (LNG) Marine Vessels

A. Onsite and Offsite Emergency Response Plans

Rio Grande continues to develop a comprehensive Emergency Response Plan with local, state, and federal agencies and emergency response officials and would continue these collaborative efforts during the development, design, and construction of the project. As required by Environmental Condition 53, Rio Grande must file an Emergency Response Plan covering the terminal and ship transit for review and approval by Commission staff prior to construction. Commission staff would also review and approve final design information related to the various layers of protection that would enhance the safety and security of the Rio Grande LNG Terminal and would be in accordance with recommended and generally accepted good engineering practices. These reviews go above the minimum federal requirements required by the Pipeline and Hazardous Materials Safety Administration (PHMSA) and U.S. Coast Guard (USCG) regulations for the LNG facility,¹ and USCG regulations for the LNG marine vessel.² In addition, for LNG marine vessels, the 2004 Sandia Report describes the risk and consequences within each Zone of Concern with risk management strategies to mitigate risk to infrastructure and the public.³ The layers of protection and risk management strategies reduce public incident impacts to less than significant levels, including impacts to those with access and functional needs and environmental justice communities.

The Emergency Response Plan and Cost Sharing Plan requirements are required by Environmental Conditions 53 and 54 as modified in Appendix A of this order. However, in order to mitigate the potential offsite risks from a catastrophic incident from an LNG marine vessel or at the Rio Grande LNG Terminal to people with access and

¹ 49 C.F.R. § 193 (PHMSA Regulations); 33 C.F.R. §§ 105, 127 (USCG Regulations).

² 33 C.F.R. § 104 (2022); 46 C.F.R. § 154 (2022).

³ See U.S. DOE, Office of Scientific and Technical Information, *2004 Sandia Report*, 1.3.1 and 1.3.2, <https://www.osti.gov/servlets/purl/882343/> (last visited Dec. 2022).

functional needs, Rio Grande would need to consider additional identified elements of recommended and generally accepted good engineering practices for emergency response plans and resource requirements, including, but not limited to consistency with the following National Fire Protection Association (NFPA) codes and standards: NFPA 1600,⁴ NFPA 1616,⁵ NFPA 1620,⁶ NFPA 470,⁷ and NFPA 475⁸ or approved equivalents. Specifically, NFPA 1600 (2019 edition) provides provisions for the planning and design process of an emergency management program and includes the following provisions:

- Section 5.2.2 specifies a risk assessment to be conducted evaluating the likelihood and severity of hazards, including accidental and intentional events that may result in hazardous material releases, explosions, and fires as well as consideration of specific causes and preceding events, such as geological events (e.g., subsidence, earthquakes, tsunamis, volcanic, etc.) and meteorological events (e.g., extreme temperatures, hurricanes, tornadoes, floods, snow and ice storms, and wildland fires, etc.), as discussed in the final EIS.⁹
- Section 5.2.2.2 specifies the vulnerability of people, property, operations, environment, and supply chain operations to be evaluated.

⁴ NFPA, *NFPA 1600: Standard on Continuity, Emergency, and Crisis Management*, <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1600> (last visited Jan. 2023).

⁵ NFPA, *NFPA 1616: Standard on Mass Evacuation, Sheltering, and Re-Entry Programs*, <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1616> (last visited Jan. 2023).

⁶ NFPA, *NFPA 1620: Standard for Pre-Incident Planning*, <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1620> (last visited Jan. 2023).

⁷ NFPA, *NFPA 470: Hazardous Materials/Weapons of Mass Destruction (WMD) Standard for Responders*, <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=470> (last visited Jan. 2023).

⁸ NFPA, *NFPA 475: Recommended Practice for Organizing, Managing, and Sustaining a Hazardous Materials/Weapons of Mass Destruction Response Program*, <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=475> (last visited Jan. 2023).

⁹ Final EIS at 4-339 – 4-351.

- Section 5.2.3 specifies the analysis of the impacts of the hazards identified in section 5.2.2 on the health and safety of persons in the affected area and personnel responding to the incident as well as impacts to properties, facilities, and critical infrastructure.
- Section 5.2.4 specifies an analysis of the escalation of impacts over time.
- Section 5.2.5 specifies evaluation of incidents that could have cascading impacts.
- Section 5.2.6 specifies the risk assessment to evaluate the adequacy of existing prevention and mitigation measures.

Chapter 6 of NFPA 1600 (2019 edition) covers the implementation of the plans, including health and safety of personnel, roles and responsibilities of internal and external entities, lines of authority, process for delegation of authority, liaisons with external entities, and logistics support and resource requirements.

- Section 6.3.1 specifies the implementation of a mitigation strategy that includes measures to limit or control the consequences, extent, or severity of an incident that cannot be prevented based on the results of hazard identification and risk assessment and analysis of impacts.
- Section 6.9.2 specifies that emergency response plans should identify actions to be taken to protect people, including people with disabilities and other access and functional needs.¹⁰
- Sections 6.6 and 6.9.4 stipulate an emergency response plan include warning, notification, and communication should be determined and be reliable, redundant, and interoperable and tested and used to alert stakeholders potentially at risk from an actual or impending incident.
- Section 6.8 specifies the development of an incident management system to direct, control, and coordinate response, continuity, and recovery operations.

¹⁰ NFPA 1600 defines “access and functional need” as “Persons requiring special accommodations because of health, social, economic, or language challenges.”

- Section 6.8.1 stipulates primary and alternate emergency operations centers be established capable of managing response, continuity, and recovery operations and may be physical or virtual.

In addition, NFPA 1600 (2019 edition) Chapter 7 provides specifications for execution of the plan, Chapter 8 provides for training and education provisions, Chapter 9 provides for exercises and tests to be conducted periodically, and Chapter 10 provides for its continued maintenance and improvement.

NFPA 1616 (2020 edition) covers organizing, planning, implementing, and evaluating a program for mass evacuation, sheltering, and re-entry. Similar to NFPA 1600, the following sections of NFPA 1616 stipulate:

- Section 4.5 stipulates similar hazard identification, risk assessment, and requirements analysis as NFPA 1600.
- Section 5.1 stipulates plans to address the health and safety of personnel including persons with disabilities and access and functional needs.¹¹
- Section 5.6 specifies a requirements analysis in sub-section 5.6.1 that is based upon the threat, hazard identification, and risk assessment. Sub-section 5.6.2(1) specifies the requirements analysis include characteristics of the potentially affected population, including persons with disabilities and other access and functional needs. In addition, sub-section 5.6.2(2) stipulates consideration of existing mandatory evacuation laws and expected enforcement of those laws. Sub-section 5.6.2(3) stipulates the requirements analysis to include characteristics of the incident that trigger consideration for evacuation based on weather, season, and ambient conditions, speed of onset, magnitude, location and direction, duration, resulting damages to essential functions, risk for cascading effects and secondary disasters, and capability of transportation routes and systems to

¹¹ NFPA 1616 defines “People with Access and Functional Needs” as “Persons with disabilities and other access and functional needs include those from religious, racial, and ethnically diverse backgrounds; people with limited English proficiency; people with physical, sensory, behavioral and mental health, intellectual, developmental and cognitive disabilities, including individuals who live in the community and individuals who are institutionalized; older adults with and without disabilities; children with and without disabilities and their parents; individuals who are economically or transportation disadvantaged; women who are pregnant; individuals who have acute and chronic medical conditions; and those with pharmacological dependency.”

transport life-sustaining materials (e.g., water, medical supplies, etc.) into the affected area.

- Section 5.6.3 stipulates the determination if evacuation or sheltering-in-place is appropriate to the situation and resources available based on 1) the anticipated impact and duration of the event, 2) the distance to appropriate sheltering facilities, 3) the availability of and access to transportation to those facilities, and 4) the ability to communicate with the affected population within the required timeframe.
- Section 5.6.4 stipulates the 1) establishment of a single or unified command, 2) development of information system to notify public and provide an assessment of the time needed to reach people with the information, 3) identification of appropriate sheltering facilities by location, size, types of services available, accessibility, and building safety, and 4) identification of the modes and routes for evacuee transportation and the time needed to reach them, sources of evacuee support services, and manpower requirements based on various potential shelters.
- Section 5.8 also has stipulations for dissemination of information on evacuation, shelter in place, and re-entry before, during, and after an incident to personnel and to the public.
- Section 5.9 has stipulations for warning, notification, and communication needs that are reliable and interoperable and redundant where feasible that takes into account persons with disabilities and other access and functional needs.

Similar to NFPA 1600, NFPA 1616 has requirements in Chapter 6 on Implementation, Chapter 7 on Training and Education, Chapter 8 on Exercises, and Chapter 9 on Program Maintenance and Improvement with additional specifics for mass evacuation, sheltering in place, and re-entry.

NFPA 1620 (2020 edition) specifies the characteristics of the facility and personnel onsite that should be within a pre-incident plan, such as emergency contact information, including those with knowledge of any supervisory, control, and data acquisition systems, communication systems, emergency power supply systems, and facility access controls as well as personnel accountability and assistance for people with self-evacuation limits, means of egress, emergency response capabilities, spill containment systems, water supply and fire protection systems, hazardous material information (e.g., safety datasheets), special considerations for responding to hazardous materials (e.g., firewater may exacerbate LNG fires, boiling-liquid-expanding-vapor

explosion (BLEVE)¹² potential, etc.), and access to emergency action plans developed by the facility. Similar to NFPA 1600 and NFPA 1616, NFPA 1620 section 8.5.2 also addresses the implementation of an incident management system for the duration of the event and Chapter 10 establishes maintenance of a pre-incident plan.

NFPA 1600, NFPA 1616, and NFPA 1620 provisions for threat, hazard identification, and risk assessment provisions and identification of resource requirements and gaps are also consistent with Department of Homeland Security FEMA's Comprehensive Preparedness Guide 101, Developing and Maintaining Emergency Operations Plans, Version 3.0, September 2021, and Comprehensive Preparedness Guide 201, Threat and Hazard Identification and Risk Assessment and Stakeholder Preparedness Review Guide, Third Edition, May 2018, and other FEMA guidance.

NFPA 470 covers the competencies and job performance requirements for emergency response personnel to incidents involving hazardous materials, including awareness level personnel (i.e., personnel onsite that would call for emergency responders and secure the scene), operations level responders (i.e., personnel responding to incident for implementing supporting actions to protect the public), hazardous material technicians (i.e., personnel responding to incident for analyzing and implementing planned response), hazardous materials officers, hazardous materials safety officers, emergency medical services (EMS) personnel, incident commanders, and other specialist employees. The standard covers competencies and Job Performance Requirements, including the ability to identify hazardous material releases and hazardous materials involved and identifying surrounding conditions, such as topography, weather conditions, public exposure potential, possible ignition sources, land use and adjacent land use, overhead and underground wires and pipelines, rail lines, and highways, bodies of water, storm and sewer drains, and building information (e.g., ventilation ducts and air returns). Part of the standard also describes the ability and requirement to estimate potential outcomes in order to properly plan response strategies and tactics, and the selection and

¹² The American Institute of Chemical Engineers Center for Chemical Process Safety defines a boiling-liquid-expanding-vapor-explosion or BLEVE as a "type of rapid phase transition in which a liquid contained above its atmospheric boiling point is rapidly depressurized, causing a nearly instantaneous transition from liquid to vapor with a corresponding energy release. A BLEVE of flammable material is often accompanied by a large aerosol fireball, since an external fire impinging on the vapor space of a pressure vessel is a common cause. However, it is not necessary for the liquid to be flammable to have a BLEVE occur." Center for Chemical Process Safety, *Boiling-Liquid-Expanding-Vapor Explosion (BLEVE)*, <https://www.aiche.org/ccps/resources/glossary/process-safety-glossary/boiling-liquid-expanding-vapor-explosion-bleve>, (last visited April 2023).

use of proper personnel protective equipment (PPE). Many of these provisions are similar and synergistic with NFPA 1600, NFPA 1616, and NFPA 1620.

NFPA 475 covers the organization, management, and sustainability of a hazardous material response program, including identifying facilities with hazardous materials, analyzing the risk of hazardous material incidents, including identifying hazardous materials at each location, (e.g., quantity, concentration, hazardous properties, etc.), type and design of containers; surrounding population and infrastructure, including vulnerable populations and critical facilities (e.g., schools, hospitals, businesses, etc.). NFPA 475 similarly calls for analyzing the risk of an incident based on the consequences of a release and predicting its behavior and estimating the probability for an incident to take place and potential for cascading incidents. NFPA 475 Chapter 7 also has provisions for resource management, including the identification, acquisition, and management of personnel, equipment, and supplies to support hazardous material response programs. NFPA 475 Chapter 8 expands upon staffing requirements and use of different staffing models and Chapter 9 expands upon training program with reference and similarities to NFPA 470.

In accordance with these recommended and generally accepted good engineering practices, Commission staff evaluated the potential impacts from incidents caused by a range of natural hazards, accidental events, intentional events, and potential for cascading damage at the LNG terminal, including scenarios that would lead to a potential catastrophic failure of a tank required to be accounted in emergency response plans by PHMSA regulations in 49 C.F.R. § 193.2509, and along the LNG carrier route using the Zones of Concern referenced in USCG Navigation and Vessel Inspection Circular (NVIC) 01-11.¹³ In addition, Commission staff identified potential emergency response needs based on the potential impacts to and characteristics of the population and infrastructure for potential intentional and accidental incidents along the LNG marine vessel route and at the LNG terminal. Consistent with these practices, Commission staff evaluated the potential hazards from incidents, the potential impacts to areas from incidents and the evaluation of characteristics of population, including those with potential access and functional needs, and infrastructure that require special considerations in pre-incident planning, including but not limited to:

- daycares;
- elementary, middle, and high schools and other educational facilities;

¹³ USCG, *NVIC 01-11*, (Jan. 24, 2011), <https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/5ps/NVIC/2011/NVIC%2001-2011%20Final.pdf>.

- elderly centers and nursing homes and other boarding and care facilities;
- detention and correctional facilities;
- stadiums, concert halls, religious facilities, and other areas of assembly;
- densely populated commercial and residential areas, including high rise buildings, apartments, and hotels;
- hospitals and other health care facilities;
- police departments, stations, and substations;
- fire departments and stations;
- military or governmental installations and facilities;
- major transportation infrastructure, including evacuation routes, major highways, airports, rail, and other mass transit facilities as identified in external impacts section; and
- industrial facilities that could exacerbate the initial incident, including power plants, water supply infrastructure, and hazardous facilities with quantities that exceed thresholds in EPA RMP and/or OSHA PSM standards as identified in external impacts section.

Many of these facilities are also identified and defined in NFPA 101, Life Safety Code, and require emergency action plans. NFPA 101 is currently used by every U.S. state and adopted statewide in 43 of the 50 states.¹⁴ Texas adopted and follows NFPA 101 (2015 edition) without amendments.^{15,16} These areas are also similar to “identified sites” defined in 49 C.F.R. § 192 that define high consequence areas and those identified

¹⁴ NFPA, *NFPA 101 Fact Sheet*, (July 27, 2009), <https://www.nfpa.org/assets/files/AboutTheCodes/101/NFPA101FactSheet0809.pdf>.

¹⁵ Up Codes, *Texas Building Codes*, <https://up.codes/codes/texas> (last visited Jan. 2023).

¹⁶ Texas Department of Insurance: Texas State Fire Marshal, *Standards of Inspection*, <https://www.tdi.texas.gov/fire/fmfsinotices.html> (last visited Jan. 2023).

within Pipelines and Informed Planning Alliance (PIPA) for special land use planning considerations near pipelines.¹⁷

B. Potential Hazards

An incident can result in various potential hazards and are initiated by a potential liquid and/or gaseous release with the formation of vapor at the release location, as well as from any liquid that pooled. The fluid released may present low or high temperature hazards and may result in the formation of toxic or flammable vapors. The type and extent of the hazard will depend on the material released, the storage and process conditions, and the volumes and durations released.

Exposure to either cold liquid or vapor could cause freeze burns and depending on the length of exposure, more serious injury or death. However, spills would be contained to on-site areas and the cold state of these releases would be greatly limited due to the continuous mixing with the warmer air. The cold temperatures from the release would not present a hazard to the public, which would not have access to onsite areas. The cold temperatures may also quickly cool any materials contacted by the liquid on release, causing extreme thermal stress in materials not specifically designed for such conditions. These thermal stresses could subsequently subject the material to brittleness, fracture, or other loss of tensile strength and result in cascading failures. However, regulatory requirements and Environmental Conditions in the Authorization Order would ensure that these effects would be accounted for in the design of equipment and structural supports.

A rapid phase transition (RPT) can occur when a cryogenic liquid is spilled onto water and changes from liquid to gas, virtually instantaneously. Unlike an explosion that releases energy and combustion products from a chemical reaction, an RPT is the result of heat transferred to the liquid inducing a change to the vapor state. RPTs have been observed during LNG test spills onto water. In some test cases, the overpressures generated were strong enough to damage test equipment in the immediate vicinity of the LNG release point. The sizes of the overpressure events have been generally small and are not expected to cause significant damage. Six of the 18 Coyote spills¹⁸ produced RPT

¹⁷ U.S. DOT: Pipelines and Informed Planning Alliance, *Partnering to Further Enhance Pipeline Safety in Communities through Risk-Informed Land Use Planning, Final Report of Recommended Practices*, (Nov. 2010) <https://primis.phmsa.dot.gov/comm/publications/PIPA/PIPA-Report-Final-20101117.pdf#pagemode=bookmarks>.

¹⁸ Goldwire, H.C., et al., Coyote Series Data Report LLNL/NWC 1981 LNG Spill Tests Dispersion, Vapor Burn, and Rapid Phase Transition, Volume 1 (1983). In 1981, a series of LNG spill experiments were performed at the Naval Weapons Center, located at China Lake, California; they are commonly referred to as the Coyote series. There was a

explosions. Most were early RPTs that occurred immediately with the spill, and some continued for the longer periods. Including RPTs near the end of the spills on three tests. LNG composition, water temperature, spill rate and depth of penetration all seem to play a role in RPT development and strength. The maximum strength RPT yielded equivalent to up to 6.3 kilograms of TNT free-air point source at the maximum spill rate of 18 m³/min (4,750 gpm). This would produce an approximate 1 psi overpressures less than 100 feet from the spill source. These events are typically limited to the area within the spill and are not expected to cause damage outside of the area engulfed by the LNG pool. However, a RPT may affect the rate of pool spreading and the rate of vaporization for a spill on water.

C. Vapor Dispersion

Depending on the size and product of the release, liquids may form a liquid pool and vaporize. Additional vaporization would result from exposure to ambient heat sources, such as water or soil. The vapor may form a toxic or flammable cloud depending on the material released. The dispersion of the vapor cloud will depend on the physical properties of the cloud, the ambient conditions, and the surrounding terrain and structures. Generally, a denser-than-air vapor cloud would sink to the ground and would travel with the prevailing wind, while a lighter-than-air vapor cloud would rise and travel with the prevailing wind. The density will depend on the material releases and the temperature of the material. For example, an LNG release would initially form a denser than-air vapor cloud and transition to lighter-than-air vapor cloud as the vapor disperses downwind and mixes with the warm surrounding air. However, experimental observations and vapor dispersion modeling indicate an LNG vapor cloud would not typically be warm, or buoyant, enough to lift off from the ground before the LNG vapor cloud disperses below its lower flammable limit (LFL).

A vapor cloud formed following an accidental release would continue to be hazardous until it dispersed below toxic levels and/or flammable limits. Toxicity is primarily dependent on the airborne concentration of the toxic component and the exposure duration, while flammability of the vapor cloud is primarily dependent just on the concentration of the vapor when mixed with the surrounding air. In general, higher concentrations within the vapor cloud would exist near the spill, and lower concentrations would exist near the edge of the cloud as it disperses downwind.

Toxicity is defined by several different agencies for different purposes. Acute Exposure Guideline Level (AEGL) and Emergency Response Planning Guidelines (ERPG) can be used for emergency planning, prevention, and response activities related

total of ten Coyote series experiments, which included the study of vapor dispersion and burning vapor clouds and rapid-phase transition explosions. *Id.*

to the accidental release of hazardous substances. Other federal agencies, such as the U.S. Department of Energy (DOE), EPA, and National Oceanic and Atmospheric Administration (NOAA), use AEGLs and ERPGs as the primary measure of toxicity.

There are three AEGLs and three ERPGs, which are distinguished by varying degrees of severity of toxic effects with AEGL-1 and ERPG-1 (level 1) being the least severe to AEGL-3 and ERPG-3 (level 3) being the most severe.

- AEGL-1 is the airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic non sensory effects. However, these effects are not disabling and are transient and reversible upon cessation of the exposure.
- AEGL-2 is the airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long lasting adverse health effects or an impaired ability to escape.
- AEGL-3 is the airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience life-threatening health effects or death.

The EPA directs the development of AEGLs in a collaborative effort consisting of committee members from public and private sectors across the world. Commission staff uses AEGLs preferentially as they are more inclusive and provide toxicity levels at various exposure times (10 minutes, 30 minutes, 1 hour, 4 hours, and 8 hours). The use of AEGLs is also preferred by the DOE and NOAA. Under the EPA RMP regulations in 40 C.F.R. § 68, the EPA currently requires the determination of distances to toxic concentrations based on ERPG-2 levels. ERPG levels have similar definitions but are based on the maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to 1 hour without experiencing similar effects defined in each of the AEGLs. The EPA provides ERPGs (1 hour) for a list of chemicals. These toxic concentration endpoints are comparable to AEGLs endpoints.

In addition, any non-toxic release that does not contain oxygen would be classified as simple asphyxiants and may pose extreme health hazards, including death, if inhaled in significant quantities within a limited time. Very cold methane and heavier hydrocarbons vapors may also cause freeze burns. However, the locations of concentrations where cold temperatures and oxygen-deprivation effects could occur are greatly limited due to the continuous mixing with the warmer air surrounding the spill site. For that reason,

exposure injuries from contact with releases of methane, nitrogen, and heavier hydrocarbons normally represent negligible risks to the public.

Flammable vapors can develop when a flammable material is above its flash point and concentrations are between the LFL and the upper flammable limit (UFL). Concentrations between the LFL and UFL can be ignited, and concentrations above the UFL or below the LFL would not ignite.

The extent of the affected area and the severity of the impacts on objects within a vapor cloud would primarily be dependent on the material, quantity, and duration of the initial release, the surrounding terrain, and the weather (e.g., wind speed and direction, temperature, humidity, etc.) present during the dispersion of the cloud.

D. Flammable Vapor Ignition

If the flammable portion of a vapor cloud encounters an ignition source, a flame would propagate through the flammable portions of the cloud. In most circumstances, the flame would be driven by the heat it generates. This process is known as a deflagration, or a flash fire, because of its relatively short duration. However, exposure to a deflagration, or flash fire, can cause severe burns and death, and can ignite combustible materials within the cloud. If the deflagration in a flammable vapor cloud accelerates to a sufficiently high rate of speed, pressure waves that can cause damage would be generated. As a deflagration accelerates to super-sonic speeds, the large shock waves produced, rather than the heat, would begin to drive the flame, resulting in a detonation. The flame speeds are primarily dependent on the reactivity of the fuel, the ignition strength and location, the degree of congestion and confinement of the area occupied by the vapor cloud, and the flame travel distance. Once a vapor cloud is ignited, the flame front may propagate back to the spill site if the vapor concentration along this path is sufficiently high to support the combustion process. When the flame reaches vapor concentrations above the UFL, the deflagration will transition to a pool or jet fire back at the source. If ignition occurs soon after the release begins, a fireball may occur near the source of the release and would be of a relatively short duration compared to an ensuing jet or pool fire. The extent of the affected area and the severity of the impacts on objects in the vicinity of a fire would primarily be dependent on the material, quantity, and duration of the fire, the surrounding terrain, and the ambient conditions present during the fire.

E. Overpressures

If the deflagration in a flammable vapor cloud accelerates to a sufficiently high rate of speed, pressure waves that can cause damage would be generated. As a deflagration accelerates to super-sonic speeds, large pressure waves are produced, and a shock wave is created. In this scenario, the shock wave, rather than the heat, would drive

the flame, resulting in a detonation. Deflagrations or detonations are generally characterized as “explosions” as the rapid movement of the flame and pressure waves associated with them cause additional damage beyond that from the heat. The amount of damage an explosion causes is dependent on the amount the produced pressure wave is above atmospheric pressure (i.e., an overpressure) and its duration (i.e., pulse). For example, a 1 psi overpressure, often cited as a safety limit in NFPA 59A (2019 edition) and U.S. regulations, is associated with glass shattering and traveling with velocities high enough to lacerate skin.

Flame speeds and overpressures are primarily dependent on the reactivity of the fuel, the ignition strength and location, the degree of congestion and confinement of the area occupied by the vapor cloud, and the flame travel distance.

The potential for unconfined LNG vapor cloud detonations was investigated by the USCG in the late 1970s at the Naval Weapons Center in China Lake, California. Using methane, the primary component of natural gas, several experiments were conducted to determine whether unconfined LNG vapor clouds would detonate. Unconfined methane vapor clouds ignited with low-energy ignition sources (13.5 joules), produced flame speeds ranging from 12 to 20 mph. These flame speeds are much lower than the flame speeds associated with a deflagration with damaging overpressures or a detonation.

To examine the potential for detonation of an unconfined natural gas cloud containing heavier hydrocarbons that are more reactive, such as ethane and propane, the USCG conducted further tests on ambient-temperature fuel mixtures of methane-ethane and methane-propane. The tests indicated that the addition of heavier hydrocarbons influenced the tendency of an unconfined natural gas vapor cloud to detonate. Less processed natural gas with greater amounts of heavier hydrocarbons would be more sensitive to detonation.

Although it has been possible to produce damaging overpressures and detonations of unconfined LNG vapor clouds, the feed gas stream proposed for the project would have lower ethane and propane concentrations than those that resulted in damaging overpressures and detonations. The substantial amount of initiating explosives needed to create the shock initiation during the limited range of vapor-air concentrations also renders the possibility of detonation of these vapors at an LNG plant as unrealistic. Ignition of a confined LNG vapor cloud could result in higher overpressures. To prevent such an occurrence, Rio Grande would take measures to mitigate the vapor dispersion and ignition into confined areas, such as buildings. Rio Grande would install hazard detection devices at all combustion and ventilation air intake equipment to enable isolation and deactivation of any combustion equipment whose continued operation could add to, or sustain, an emergency. In general, the primary hazards to the public from an

LNG spill that disperses to an unconfined area, either on land or water, would be from dispersion of the flammable vapors or from radiant heat generated by a pool fire.

In comparison with LNG vapor clouds, there is a higher potential for unconfined propane clouds to produce damaging overpressures. This has been shown by multiple experiments conducted by the Explosion Research Cooperative to develop predictive blast wave models for low, medium, and high reactivity fuels and varying degrees of congestion and confinement. The experiments used methane, propane, and ethylene, as the respective low, medium, and high reactivity fuels. In addition, the tests showed that if methane, propane, or ethylene are ignited within a confined space, such as in a building, they all have the potential to produce damaging overpressures.

Fires and overpressures may also cause failures of nearby storage vessels, piping, and equipment if not properly mitigated. These failures are often termed cascading events or domino effects and can exceed the consequences of the initial hazard. The failure of a pressurized vessel could cause fragments of material to fly through the air at high velocities, posing damage to surrounding structures and a hazard for operating staff, emergency personnel, or other individuals in proximity to the event. In addition, failure of a pressurized vessel when the liquid is at a temperature significantly above its normal boiling point could result in a BLEVE. BLEVEs can produce overpressures when the superheated liquid rapidly changes from a liquid to a vapor upon the release from the vessel. BLEVEs of flammable fluids may also ignite upon its release and cause a subsequent fireball.

F. Potential Infrastructure Impacts from LNG Facilities

The final EIS for the Rio Grande LNG Terminal assessed potential impacts to the public and whether the project would operate safely, reliably, and securely.¹⁹ The Rio Grande LNG Terminal would be subject to design requirements and would include mitigation to meet regulation requirements and the conditions of the Authorization Order.²⁰ Although the likelihood of incidents and hazards described in the final EIS are extremely low due to the mitigation required by regulations and Environmental Conditions, potential impacts from these hazards could impact onsite personnel and offsite public.²¹

¹⁹ See Final EIS at 4-304 – 4-380.

²⁰ See Authorization Order, 169 FERC ¶ 61,131 at app.

²¹ Specific distances of potential impacts from incidents at an LNG terminal have not been provided at this time to try and balance the potential security interests in releasing such information. Specific distances for various hazards described would be

Commission staff evaluated a range of releases to evaluate the potential impacts to populations and infrastructure within vicinity of the plant. Impacts would vary based on the initiating event and subsequent release characteristics (e.g., size, location, direction, process conditions, etc.), hazard (i.e., vapor dispersion, overpressures, fires, BLEVE and pressure vessel bursts), weather conditions, and surrounding terrain. Distances to radiant heats of 5 kW/m² (or approximately 1,600 BTU/ft²-hr) from fires produced by accidental and intentional acts could impact onsite personnel or offsite public. For example, section 2.2.2.2 in NFPA 59A-2001, incorporated by reference in PHMSA regulations in 49 C.F.R. § 193, requires spill containments, serving vaporization, process, or LNG transfer area, to contain liquid releases from 2-inch diameter holes and guillotine releases of piping less than 6-inches in diameter. Additionally, PHMSA siting regulations for flammable vapor dispersion and thermal radiation exclusion zones limit the dispersion of flammable vapors and 1,600 BTU/ft²-hr radiant heat from LNG pool fires in those spill containment systems in certain weather conditions from extending beyond the control of the operator or government agency and prevent it from extending onto areas accessible by the public. The Authorization Order requires spill containment systems to capture all liquid from guillotine ruptures of the single largest line and largest vessel(s) to limit their pool spread and vaporization. This effectively limits the extent of the 1,600 BTU/ft²-hr radiant heat from pool fires to onsite for even the largest releases from a single source and considerably reduces the dispersion distances to flammable vapors. However, ignition of releases larger than those used in the siting analyses can result in 1,600 BTU/ft²-hr and 10,000 BTU/ft²-hr radiant heats from jet and pool fires that extend offsite onto publicly accessible areas.

The only offsite infrastructure that could be impacted by 10,000 BTU/ft²-hr radiant heat from a fire would be a portion of Texas State Highway 48 with no impacts to nearby communities. The offsite infrastructure that could be impacted by 1,600 BTU/ft²-hr radiant heat from a fire would be the authorized Texas LNG Terminal facility²² and the infrastructure within the 10,000 BTU/ft²-hr radiant heat with no impact to nearby communities. The unignited vapor dispersion from a catastrophic failure of an LNG storage tanks is extremely unlikely but, if it occurred, could extend farther offsite and could impact the following critical infrastructure: commercial areas including the Port Isabel-San Benito Navigation District, and the Space X assembly facility, numerous local government buildings including the Port Isabel Police Department, Cameron County

provided in emergency response plans for reference and use by emergency responders, Further, potential hazards have been described and potential impacts to communities are disclosed to balance the importance of public disclosure and transparency on the balance of potentially releasing information that has not been previously released and could be used by intentional actors.

²² *Tex. LNG Brownsville LLC*, 169 FERC ¶ 61,130 (2019).

Precinct 1 Constable's Office, Port Isabel City Fire Department, Cameron County Tax Assessor-Collector Office, Port Isabel City Hall, and Port Isabel City Social Worker Office; two health care facilities including the Port Isabel Health Clinic, and the Luna Medical Clinic, and several major roadways, including the Queen Isabel Causeway, Texas State Highway 100, and Texas State Highway 48. Several communities within the extent of the unignited vapor release from a catastrophic failure of one of the LNG storage tanks could include multiple residential homes, apartment complexes, several schools including Garriga Elementary School, Derry Elementary School, Port Isabel Junior High School, Port Isabel High School, several child-care facilities including the Little Learners Academy, Esperanza B. Garza Head Start, and Beacon Bay Head Start, hotels, and places of worship.

G. Potential Infrastructure Impacts Along LNG Marine Vessel Route

As LNG marine vessels proceed along the intended transit route, the estimated impacts would extend onto populated areas and infrastructure. These distances are provided as Zones of Concern in the publicly available guidance document Navigation and Vessel Inspection Circular (NVIC) 01-11²³ used by the USCG and correspond to 37.5 kW/m² (approximately 12,000 BTU/ft²-hr) radiant heats from fires for Zone 1, 5 kW/m² (approximately 1,600 BTU/ft²-hr) radiant heats from fires for Zone 2, and flammable vapor dispersion distances for Zone 3. The areas, including a description of the infrastructure and communities, impacted by the three different hazard zones were provided for accidental and intentional events in the final EIS.²⁴

H. Potential Impacts on People with Access and Functional Needs and Environmental Justice Communities

Commission staff used EJScreen²⁵ as an initial screening tool to identify the potential impacts from incidents along the LNG marine vessel transit route and at the LNG terminal, including potential impacts to people with access and functional needs as defined in NFPA 1600 and 1616. Table C.1 shows the resultant percentages of people

²³ USCG, *NVIC 01-11*, (Jan. 24, 2011), <https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/5ps/NVIC/2011/NVIC%2001-2011%20Final.pdf>.

²⁴ Final EIS, 4-317 at Fig. 4.12.1.3-1; 4.12.1.3-2.

²⁵ EPA, *EJScreen (Version 2.1)*, <https://ejscreen.epa.gov/mapper/> (last visited Dec. 2022).

with potential access and functional needs based on 2016-2020 U.S. Census Bureau, American Community Survey (ACS), as follows.²⁶

²⁶ Based on EPA, EJScreen User Guide Version 2.1, 2022, the impact area would aggregate appropriate portions of the intersecting block groups, weighted by population, to create a representative set of data for the entire ring area, honoring variation and dispersion of the population in the block groups within it. For each indicator, the result is a population-weighted average, which equals the block group indicator values averaged over all residents who are estimated to be inside the impact area. A weight factor for each block group is determined by summing each block point population percentage for that block group. If the impact area touches part of a neighboring block group that contains no block points, nothing will be aggregated; if an impact area intersects a number of block groups, EJScreen indices will be aggregated within each block group based on the affiliated block points. The aggregation is done by using factor-weighted block points.

TABLE C.1**People With Access and Functional Needs within Potential Impact Areas**

Potential Incident Impact Area	Population Density (per square mile)¹	Households¹	Housing Units¹	Age 0-4 (percent)¹	Age 65+ (percent)¹	Linguistically Isolated Households (percent)^{1, 2, 3}
Zone 1 (LNG marine vessel - Accidental)	0	0	0	0%	0%	0%
Zone 2 (LNG marine vessel - Accidental)	319	75	397	2%	34%	0%
Zone 3 (LNG marine vessel - Accidental)	168	237	1,255	2%	34%	0%
Zone 1 (LNG marine vessel - Intentional)	0	0	0	0%	0%	0%
Zone 2 (LNG marine vessel - Intentional)	183	195	1,033	2%	34%	0%
Zone 3 (LNG marine vessel - Intentional)	194	1,558	4,095	5%	22%	14.9%
10,000 BTU/ft ² -hr (LNG Terminal)	0	0	0	0%	0%	0%
1,600 BTU/ft ² -hr (LNG Terminal)	0	0	0	0%	0%	0%
Flammable Vapor Cloud (LNG Terminal)	186	2,995	5,470	9%	19%	13.6%

¹ American Community Survey, 2016-2020, ACS Estimates² Households in which no one 14 and over speaks English "very well" or speaks English only.³ Calculated by dividing the number of linguistically isolated households by the total number of households multiplied by 100.

The worst-case distances from these potential incidents would potentially impact six census block groups, all of which are considered environmental justice communities. The block groups located with environmental justice communities that exceed the thresholds for minority and low income would include Census Tracts 142.02 Block Group 2, 127 Block Group 2, 123.04 Block Group 2, 123.04 Block Group 4 (based on the minority and low-income thresholds); Census Tract 123.04 Block Group 3 (based on the minority threshold); and Census Tract 123.04 Block Group 1 (based on low-income threshold).

I. Emergency Response Plans and Mitigation

In order to mitigate these potential offsite risks, this order modifies, in Appendix A, the Emergency Response Plan and Cost Sharing Plan Environmental

Conditions 53 and 54 from the Authorization Order. The modified language specifies emergency response and cost sharing considerations related to public education materials, including those with access and functional needs and environmental justice communities, on proposed evacuation routes and shelter in place locations, first responder training, emergency command centers and equipment, and public communication methods and devices. These revisions are made by Commission staff to further enhance the safety and security measures beyond that which would normally be required at the LNG terminal by the minimum standards for LNG safety promulgated in PHMSA regulations under 49 C.F.R. § 193 and USCG regulations under 33 C.F.R. §§ 105 and 127.

As stated in Sandia National Laboratories Report, Guidance on Risk Analysis and Safety Implications of a Large LNG Spill Over Water, SAND2004-6258, which was the basis for the Zones of Concern and referenced in NVIC 01-011, Zone 1 represents “risks and consequences of an LNG spill could be significant and have severe negative impacts” and radiant heat demarked by this zone “poses a severe public safety and property hazard, and can damage or significantly disrupt critical infrastructure.” Subsequently, the Sandia report concludes that for accidental Zone 1 impacts, “risk management strategies for LNG operations should address both vapor dispersion and fire hazards” and the most rigorous deterrent measures, such as vessel security zones, waterway traffic management, and establishment of positive control over vessels are options to be considered as elements of the risk management process.” Zone 1 is based upon a 37.5 kW/m² radiant heat from a fire, which would cause significant damage to equipment and structures that are located within 1,640 feet.²⁷ Sandia recommends that “incident management and emergency response measures should be carefully evaluated to ensure adequate resources (i.e., firefighting, salvage, etc.) are available for consequence and risk mitigation.”

Sandia indicates Zone 2 represents where radiant heat “transitions to less severe hazard levels to public safety and property” and the consequence of an accidental LNG spill are reduced and risk reduction and mitigation approaches and strategies can be less extensive.” Zone 2 is based upon a 5 kW/m² radiant heat, which would cause significant impacts to individuals, but would not be expected to significantly impact most structures.²⁸ Sandia concludes that for accidental Zone 2 impacts, “risk management strategies for LNG operations should focus on approaches dealing with both vapor dispersion and fire hazards” and “should include incident management and emergency management and emergency response measures, such as ensuring areas of refuge (e.g., enclosed areas, buildings) are available, development of community warning signals, and community education programs to ensure persons know what precautions to take.”

²⁷ See Final EIS at 4-315 (specific description of Sandia Zone 1 impacts).

²⁸ See *id.* (specific description of Sandia Zone 2 impacts).

Sandia indicates Zone 3 represents “risks and consequences to people and property of an accidental LNG spill over water are minimal” and radiant heat “poses minimal risks to public safety and property.” Zone 3 is based upon the dispersion distance to flammable vapors under worst-case wind conditions.²⁹ In the rare circumstance that the flammable vapors are not ignited until later, there could be flash fires or explosions depending on congestion, confinement, and ignition strength and location. Subsequent pool fires that would be demarked from the Zone 1 and 2 fire hazard distances, Sandia concludes that for accidental Zone 3 impacts, “risk reduction and mitigation strategies can be significantly less complicated or extensive” and “should concentrate on incident management and emergency response measures that are focused on dealing with vapor cloud dispersion...,” such as ensuring “areas of refuge are available, and community education programs...to ensure that persons know what to do in the unlikely event of a vapor cloud.” Sandia makes similar recommendations for the Zones of Concern for intentional acts. The modified Emergency Response Plan and Cost Sharing Plan Environmental Condition Nos. 53 and 54 in Appendix A of this order incorporate the considerations from the Sandia recommendations and would be consistent with the recognized and generally accepted good engineering practices for evacuating and sheltering in place, such as NFPA 1600, NFPA 1616, NFPA 1620, NFPA 470, and NFPA 475.

As described in the final EIS, Commission staff evaluated Rio Grande’s application with a focus on potential hazards from within the terminal and near the site, including external events, which may have the potential to cause damage or failure to the project facilities. Based on these potential hazards, staff examined the project’s engineering design features that would mitigate potential hazards and any risk to safety and reliability.³⁰ When reviewing an applicant’s engineering design for a project, the Commission requires it to be site-specific and developed to the extent that further detailed design would not result in significant changes to the siting considerations, basis of design, operating conditions, major equipment selections, equipment design conditions, or safety system designs. The engineering design that staff evaluated included: process design; mechanical design; hazard mitigation design for the spill containment design; spacing and plant layout design; ignition control design; hazard detection; emergency shutdown and depressurization system design; hazard control design; passive cryogenic and fire protection design; firewater system design; geotechnical and structural design, including natural hazards design; and onsite and offsite emergency response plans.³¹

²⁹ See *id.* (specific description of Sandia Zone 3 impacts).

³⁰ *Id.* at 4-322 to 4-323.

³¹ *Id.* at 4-323 to 4-341 (detailing staff’s evaluation of the project’s engineering

To analyze the reliability and safety of these designs, staff considered the occurrence and likelihood of potential hazards and the likely severity of consequences based on past incidents and validated hazard modeling. As part of its review, staff recommended 93 mitigation measures in the final EIS, which were adopted as conditions in the Authorization Order.³² In addition to the earlier review, staff reevaluated the potential impacts along the LNG marine vessel transit route and at the LNG terminal as described above.³³ This review resulted in modifications to Environmental Conditions 53 and 54 from the Authorization Order related to emergency response and cost sharing plans in order to further mitigate potential offsite risks.³⁴ Based on these reviews, Commission staff determined that the risk (i.e., likelihood and consequence) of accidental and intentional events would be less than significant with implementation of the previously adopted safety and security conditions of the Authorization Order and the proposed ERP and Cost Sharing Plan recommendations herein. These measures further enhance the safety and security measures above what is required at the LNG terminal by PHMSA regulations under 49 C.F.R. § 193 and USCG regulations under 33 C.F.R. §§ 105 and 127, and those required for the LNG marine vessel by USCG regulations under 33 C.F.R. § 104 and 46 C.F.R. § 154.

The Energy Policy Act of 2005 requires LNG terminal operator's Emergency Response Plan be developed in consultation with the USCG and State and local agencies and be approved by the Commission prior to final approval to begin construction. Rio Grande has already filed initial drafts of Emergency Response Plans prior to initial site preparation and has committed to providing public education materials in English and Spanish. However, the Emergency Response Plans continue to be under development. Appendix A of this order modifies Environmental Conditions 53 and 54 from the Authorization Order, providing , that prior to construction of final design, Rio Grande shall file with the Secretary, for review and written approval by the Director of the Office of Energy Projects, or their designee, an updated Emergency Response Plan (ERP), including evacuation and any sheltering and re-entry. The ERP must be developed and coordinated with the USCG; state, county, and local emergency planning groups; fire departments; state and local law enforcement; and other appropriate federal agencies. This plan must be consistent with recommended and good engineering practices, as defined in NFPA 1600, NFPA 1616, NFPA 1620, NFPA 470, NFPA 475, or approved equivalents, and based on potential impacts and onsets of hazards from accidental and

design).

³² Authorization Order, 169 FERC ¶ 61,131 at Env't Conditions 49-139.

³³ *See supra* at C-19 & C-20.

³⁴ *See supra* Order on Remand and Amending Certificate at P 156.

intentional events along the LNG marine vessel route and potential impacts and onset of hazards from accidental and intentional events at the LNG terminal, including but not limited to a catastrophic failure of the largest LNG tank. The plan must also address any special considerations and pre-incident planning for infrastructure and public with access and functional needs and include at a minimum:

- a. materials and plans for periodic dissemination of public education and training materials in English and Spanish for potential hazards and impacts, identification of potential hazards, and steps for public notification, evacuation, and shelter in place within any transient hazard areas along the marine vessel route, and within LNG terminal hazard areas;
- b. plans to competently train emergency responders required to effectively and safely respond to hazardous material incidents including, but not limited to, LNG fires and dispersion;
- c. plans to competently train emergency responders to effectively and safely evacuate or shelter public within transient hazard areas along the marine vessel route, and within hazard areas from LNG terminal;
- d. designated contacts with federal, state, and local emergency response agencies responsible for emergency management and response within any transient hazard areas along the marine vessel route, and within hazard areas from LNG terminal;
- e. scalable procedures for the prompt notification of appropriate local officials and emergency response agencies based on the level and severity of potential incidents;
- f. scalable procedures for mobilizing response and establishing a unified command, including identification, location, and design of any emergency operations centers and emergency response equipment required to effectively and safely respond to hazardous material incidents and evacuate or shelter public within transient hazard areas along the marine vessel route, and within LNG terminal hazard areas;
- g. scalable procedures for notifying public, including identification, location, design, and use of any permanent sirens or other warning devices required to effectively communicate and warn the public prior to onset of debilitating hazards within any transient hazard areas along the LNG marine vessel route and within hazard areas from LNG terminal;
- h. scalable procedures for evacuating the public, including identification, location, design, and use of evacuation routes/methods and any mustering

locations required to effectively and safely evacuate the public within any transient hazard areas along the LNG marine transit route and within hazard areas from LNG terminal; and

- i. scalable procedures for sheltering the public, including identification, location, design, and use of any shelters demonstrated to be needed and demonstrated to effectively and safely shelter the public prior to onset of debilitating hazards within transient hazard areas that may better benefit from sheltering in place (i.e., those within Zones of Concern 1 and 2), along the route of the LNG marine vessel and within hazard areas that may benefit from sheltering in place (i.e., those within areas of 1,600 BTU/ft²-hr and 10,000 BTU/ft²-hr radiant heats from fires with farthest impacts, including from a catastrophic failure of largest LNG tank) of the LNG terminal.

Modified Environmental Condition No. 53 requires Rio Grande to notify Commission staff of all planning meetings in advance and to report progress on the development of its Emergency Response Plan at 3-month intervals.

The Energy Policy Act of 2005 requires LNG terminal operators develop a cost-sharing plan to reimburse direct costs to state and local agencies. To satisfy this requirement, Commission staff also includes revised Environmental Condition No. 54 for Rio Grande to provide a Cost Sharing Plan that includes sustained funding of any requirement or resource gap analysis identified above to be needed and to effectively and safely evacuate and shelter public and required to effectively and safely respond to hazardous material incidents. Once submitted by Rio Grande, Commission staff would evaluate the revised Emergency Response Plan and Cost Sharing Plan in accordance with recommended and good engineering practices such as, but not limited to, NFPA 1600, NFPA 1616, NFPA 1620, NFPA 470 and NFPA 475, or approved equivalents.

Based on our preliminary analysis of the hazards from the LNG facilities and along the LNG marine vessel route and the Environmental Conditions set forth in the Authorization Order and modified Environmental Conditions herein, Rio Grande must provide additional information, for review and approval, on development of emergency response plans prior to construction of final design. Rio Grande will also have to file three dimensional drawings, for review and approval, under the current conditions in its Authorization Order that demonstrate there is a sufficient number of access and egress locations at the LNG terminal. Rio Grande is also required under current conditions in its Authorization Order to coordinate with local, state, and federal agencies on the development of an emergency response plan and cost sharing plan. Rio Grande has provided and must continue to provide periodic updates on the development of these plans for review and approval, and ensure they are in place prior to introduction of hazardous fluids. In addition, the project facilities would be subject to regular

inspections throughout the life of the facility and would continue to require companies to file updates to the Emergency Response Plan.

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Rio Grande LNG, LLC

Docket Nos. CP16-454-003

CP16-454-000

Rio Bravo Pipeline Company, LLC

CP16-455-000

CP16-455-002

CP20-481-000

(Issued April 21, 2023)

PHILLIPS, Chairman, *concurring*:

1. I concur in today's orders.¹ In *Vecinos para el Bienestar de la Comunidad Costera v. FERC*,² the U.S. Court of Appeals for the District of Columbia Circuit held that "the Commission's analyses of the [Rio Bravo and Texas LNG projects'] impacts on climate change and environmental justice communities were deficient," and directed the Commission on remand to "revisit its determinations of public interest and convenience under Sections 3 and 7 of the NGA" after adequately considering those issues. With today's order, we have provided a full response to both deficiencies identified by the Court.

2. First, with respect to climate change, the Court held that the Commission did not adequately respond to arguments regarding why it should deploy the Social Cost of Carbon.³ In response, consistent with recent precedent, we have included the Social Cost of Carbon figures in today's order.

3. Second, with respect to environmental justice, the Court held that the Commission did not adequately explain its method for identifying environmental justice communities potentially affected by the projects. In response, we have conducted a full review of the

¹ I enter the same concurrence in this case as *Texas LNG Brownsville LLC*, 183 FERC ¶ 61,047 (2023).

² 6 F.4th 1321, 1331 (D.C. Cir. 2021).

³ *Id.* at 1328-30.

projects' impacts on environmental justice communities. Throughout 2022, Commission staff issued multiple data requests to gather information on the projects' potential impacts on environmental communities with 50 kilometers of the facilities. In addition, we provided all stakeholders an opportunity to comment on the information submitted in those data requests, including what that information meant for environmental justice communities. While I recognize that certain of my colleagues would have preferred more process or less, I believe that the record assembled throughout the last year is an appropriate middle ground that represents an adequate basis to fully consider the issues the Court remanded to us in *Vecinos* nearly two years ago.

4. And we did just that. Today's order conducts a full environmental justice examination using our current methods, which are consistent with EPA and CEQ guidance. As part of that investigation, and in direct response to the Court, we identified all environmental justice communities within 50 kilometers of the projects, as opposed to just those within the 2-mile radius considered in the initial orders.⁴ We then analyzed each project's impacts on affected EJ communities. As part of that full examination and due to required mitigation, we affirmed our earlier conclusion that the projects' impacts would be less than significant.

5. To that point, today's order takes an unprecedented and bipartisan step to protect environmental justice communities from potential concerns about the projects' effects on air quality. Because portions of the projects will enter service before construction is entirely completed, there is the potential that those overlapping activities could, in connection with other background emissions, contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS) for certain pollutants. To mitigate that concern, the Commission is, for the first time, *sua sponte*, requiring the projects' sponsors to file a plan to ensure that the overlapping construction and operation of project do not cause any exceedance of the NAAQS. That measure allows the Commission to conclude that the projects will not have any significant air quality impacts on environmental justice communities.

6. In addition, at a broader level, this mitigation illustrates how the Commission is making progress on the critically important issue of cumulative impacts. At the Commission's March 29, 2022 Roundtable on Environmental Justice and Equity in Infrastructure Permitting, we heard from several stakeholders, including community groups, about the importance of considering cumulative impacts—i.e., not just the air emissions directly caused by a particular project, but also those emissions in conjunction with the emissions from other sources within the region. Today's order takes a critical step toward addressing that concern by requiring that the project sponsors develop a plan

⁴ The underlying orders identified only communities within in two miles or over three kilometers of the facility.

to ensure that incremental emissions impacts associated with these projects, on top of all sources, do not cause a NAAQS exceedance, thereby helping to protect communities, including environmental justice communities, that may venture near the projects.

For these reasons, I respectfully concur.

Willie L. Phillips
Chairman

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Rio Grande LNG, LLC

Docket Nos. CP16-454-003

CP16-454-000

Rio Bravo Pipeline Company, LLC

CP16-455-000

CP16-455-002

CP20-481-000

(Issued April 21, 2023)

CLEMENTS, Commissioner, *dissenting*:

1. I dissent from the Order¹ because (1) the Commission was required to prepare a supplemental environmental impact statement (EIS) and its failure to do so renders the Order's significance determinations unsupportable; (2) the Commission should have granted the requests it received to hold public meetings addressing the Commission's new analyses of environmental and other impacts;² and (3) I disagree with the Order's explanation for why the Commission is not determining the significance of greenhouse gas (GHG) emissions associated with the Rio Grande LNG Terminal and Rio Bravo Pipeline projects.³ The Commission's failure to prepare a supplemental EIS for the two projects and the proposed amendment to the Rio Bravo Pipeline certificate, and to take public comment on the supplement, leaves the Commission with a fundamentally flawed record that cannot support a public interest determination for either project. I therefore dissent from the Order's ultimate conclusions that the Rio Bravo Pipeline, as amended,⁴ is in the public convenience and necessity and that the Rio Grande LNG Terminal is not inconsistent with the public interest.⁵

¹ *Rio Grande LNG, LLC*, 183 FERC ¶ 61,046 (2023) (Order).

² *See* Order at PP 83, 85.

³ *See* Order at PP 92-93, 101.

⁴ Given my conclusion that the Rio Bravo Pipeline project as a whole cannot be found to be in the public convenience and necessity, by extension the proposed changes to the project cannot be found to be in the public convenience and necessity. The Commission should have prepared a supplemental EIS addressing the Rio Bravo Pipeline and the proposed revisions to the project together.

⁵ Order at P 207.

2. In performing the expanded review of EJ impacts required by the D.C. Circuit's remand decision in *Vecinos*,⁶ the Commission identified 282 additional EJ communities in the area around the Rio Grande LNG Terminal that could be impacted by the project, beyond the four identified in the Commission's original analysis. It also identified 85 additional EJ communities in the area around the Rio Bravo Pipeline project, beyond the 21 identified in the Commission's original analysis. The Commission has not provided members of these 367 *newly identified* EJ communities any meaningful opportunity to comment on the impacts the projects may have on them or what mitigation measures would help prevent or minimize any adverse impacts. For the reasons explained below, the Commission should have issued the new environmental and safety analyses included in the body and appendices of the Order as a supplemental EIS, issued targeted notices of the supplemental EIS to potentially affected EJ communities, and allowed a reasonable period for public comment on the supplemental EIS, including oral comments at the town hall style meetings that commenters have requested. The Commission's failure to do so leaves us with an incomplete administrative record with respect to potential adverse impacts on newly identified EJ communities, the significance of those impacts, and mitigation measures to address them. In short, we lack the foundation for reasoned decision-making on these vital issues.

3. The National Environmental Policy Act (NEPA) requires agencies to prepare an EIS for "major Federal actions significantly affecting the quality of the human environment."⁷ The Commission did so before approving the Rio Grande LNG Terminal and Rio Bravo Pipeline projects. However, that was not enough to meet our obligations under NEPA. According to the Council on Environmental Quality's (CEQ) regulations implementing NEPA, an agency must prepare a *supplemental* EIS if "there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."⁸ Since issuing the original EIS for the Rio Grande

⁶ *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321 (D.C. Cir. 2021). The Court instructed that, on remand, the Commission must explain why it used only a two-mile radius for its analysis of EJ impacts or use a different radius. *Id.* at 1331. The Commission correctly chose to use the 50-kilometer radius in its analysis on remand because that was the only rational choice given that the Commission uses that radius for analysis of air quality impacts. *See* Order at P 118 & n.292. (explaining 50 kilometers is the distance that the U.S. Environmental Protection Agency uses for cumulative air modeling for major stationary sources under its Prevention of Significant Deterioration Program).

⁷ 42 U.S.C. § 4332(2)(C).

⁸ 40 C.F.R. § 1502.9(d)(1)(ii). The Commission's regulations implementing NEPA provide that the Commission will comply with CEQ's regulations. *See* 18 C.F.R.

Terminal and Rio Bravo Pipeline projects, and following the remand in *Vecinos*, the Commission has identified hundreds of additional potentially affected EJ communities. Under any reasonable interpretation of CEQ's regulation, this is significant new information "relevant to environmental concerns." For that reason alone, the Commission should have issued its new analyses as a supplemental EIS and provided an opportunity for public comment on it.⁹

4. The other reasons a supplemental EIS is required are equally plain. In the Order, the Commission finds that, even with Rio Grande's proposed mitigation measures, during periods when construction, operation, and commissioning activities occur at the same time at the LNG terminal, the Clean Air Act National Air Ambient Quality Standards (NAAQS) may be exceeded for certain air pollutants.¹⁰ The Order imposes a new air pollution and monitoring condition that may prevent or reduce NAAQS violations.¹¹ Although I agree that imposing this condition is a beneficial step to take, I cannot conclude that it will be sufficient to reduce cumulative air emissions to an insignificant level because the condition itself is vague¹² and we have had no public comment on whether it will be effective or what additional mitigation may be needed. The Order also finds that cumulative visual impacts associated with the Rio Grande Terminal "would be

§ 380.1.

⁹ CEQ's regulations provide that an agency "shall prepare, publish, and file a supplement to a[n EIS] . . . as a draft and final statement." 40 C.F.R. § 1502.9(3). Although the regulation does not say so explicitly, the only purpose for publishing a draft would be for the public to comment on it. Consistent with the regulation, the Commission has provided for public comment on draft supplemental EIS's. *See, e.g., Magnolia LNC, LLC; Notice of Availability of the Draft Environmental Impact Statement for the Proposed Magnolia Production Capacity Amendment*, 84 Fed. Reg. 52,881 (Oct. 3, 2019); *Florida Southeast Connection, LLC; Transcontinental Gas Pipe Line Company, LLC; Sabal Trail Transmission, LLC; Notice of Availability of the Draft Supplemental Environmental Impact Statement for the Southeast Market Pipelines Project*, 82 Fed. Reg. 16,233 (Oct. 4, 2017).

¹⁰ Order at PP 139, 141.

¹¹ *Id.* at PP 141-42.

¹² The new condition describes the basic components of the monitoring and mitigation plan that Rio Grande must file for approval, but it leaves it to the company to flesh out the specific monitoring protocol and corrective actions to be employed. In particular, the condition does not say what Rio Grande must do in response to a NAAQS exceedance or how quickly it must do it. *See* Order, App. A, Condition 144.

potentially significant.”¹³ However, it imposes no new mitigation measures to minimize those impacts. These findings in the Order themselves indicate a supplemental EIS is necessary.

5. The need for a supplemental EIS does not hinge on a definitive finding that environmental impacts will be significant. To the contrary, NEPA requires that an agency prepare an EIS where there “might” be “any” significant environmental impacts.¹⁴ Moreover, “the decision whether to prepare a supplemental EIS is similar to the decision whether to prepare an EIS in the first instance.”¹⁵ Since the Commission has determined that there may be significant air pollution and visual impacts associated with the Rio Grande Terminal, it was required to prepare a supplemental EIS.

6. The procedures employed here run counter to NEPA’s fundamental purposes. As the Supreme Court has explained, the statute’s EIS requirement “ensures that the agency, *in reaching its decision*, will have available, and will carefully consider, detailed information concerning significant environmental impacts.”¹⁶ NEPA’s public participation requirements ensure that “relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision.”¹⁷ Publishing an EIS “provides a springboard for public comment.”¹⁸ By failing to issue a supplemental EIS for public comment prior to today’s

¹³ *Id.* at P 163 (emphasis added).

¹⁴ *Standing Rock Sioux Tribe v. U.S. Army Corps of Eng’rs*, 985 F.3d 1032, 1039 (D.C. Cir. 2021) (quoting *Grand Canyon Tr. v. FAA*, 290 F.3d 339, 340 (D.C. Cir. 2002)); *see also Sierra Club v. Peterson*, 717 F.2d 1409, 1415 (D.C. Cir. 1983).

¹⁵ *Stand Up for California! v. U.S. Dep’t of the Interior*, 994 F.3d 616, 628 (D.C. Cir. 2021) (quoting *Marsh v. Or. Nat. Res. Council*, 490 U.S. 360, 374 (1989)) (internal quotation marks omitted).

¹⁶ *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989) (emphasis added); *see also Marsh*, 490 U.S. at 371 (“[B]y focusing Government and public attention on the environmental effects of proposed agency action . . . NEPA ensures that the agency will not act on incomplete information, only to regret its decision after it is too late to correct.”) (internal citations omitted); 40 C.F.R. § 1500.1(a) (“The purpose and function of NEPA is satisfied if Federal agencies have considered relevant environmental information, and the public has been informed regarding the decision-making process.”).

¹⁷ *Robertson*, 490 U.S. at 349.

¹⁸ *Id.*

Order, the Commission deprived the public of any meaningful opportunity to participate. That, in turn, prevented the Commission from reflecting in its decision today essential information the public generally and affected EJ communities otherwise could have provided on the Commission's new environmental and safety analyses.

7. Embedding the Commission's new environmental and safety analyses in the Order and its appendices is no substitute for the public notice and comment process under NEPA. The Commission does not send out notices of its orders to the mailing list compiled for purposes of the original EIS process. And it certainly does not send targeted notices to members of newly identified EJ communities. Consequently, the hundreds of EJ communities potentially impacted by the Rio Grande LNG Terminal and Rio Bravo Pipeline projects have no practical way of even discovering that they are within the projects' potential impact zone.

8. Failing to allow meaningful public participation is not just some technical error. Rather, public input provides the foundation for an agency's substantive decisions. The procedures used here not only violated NEPA, but also undermined the Commission's ability to engage in reasoned decision-making, as it is required to do under the Administrative Procedure Act (APA).¹⁹ That is because the Commission does not have a complete record reflecting input from the hundreds of newly identified EJ communities, or from the public generally, on the new environmental and safety analyses.

9. Even if the Commission were not legally required to issue a supplemental EIS for public comment, doing so would be the right way to implement the applicable Executive Orders (EOs) and guidance on EJ.²⁰ These documents call for identification, analysis, and mitigation of impacts on EJ communities. Where agencies have identified potentially

¹⁹ 5 U.S.C. § 706(2)(A); *see also Motor Vehicle Mfrs. Ass'n of the U.S. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 52 (1983) (requiring that an agency's explanation be a "product of reasoned decisionmaking" under the APA); *Vecinos*, 6 F.4th at 1330 ("[A] petitioner may challenge an agency's environmental justice analysis as arbitrary and capricious under NEPA and the APA."); *Coliseum Square Ass'n v. Jackson*, 465 F.3d 215, 232 (5th Cir. 2006) (finding an agency's environmental justice considerations reviewable under the "arbitrary and capricious" standard of the APA).

²⁰ The Commission states that it complies with the relevant EOs and guidance. *See* Order at PP 103-04; *see generally* Exec. Order No. 12,898, 59 Fed. Reg. 7629 (1994) (1994 EJ EO); Presidential Memorandum, Executive Order on Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, 1 Pub. Papers 241 (Feb. 11, 1994) (1994 EJ Memo); Federal Interagency Working Group on Environmental Justice and NEPA Committee, *Promising Practices for EJ Methodologies in NEPA Reviews* (2016) (Promising Practices Guidance).

affected minority and/or low income communities, the identification “should trigger” an “enhanced outreach effort to assure that low-income and minority populations are engaged in public participation.”²¹ Section 5-5 of the 1994 EJ EO states that agencies “shall work to ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public.”²² Furthermore, the 1997 CEQ Guidance specifically instructs that agencies “should develop effective public participation strategies” and “overcome linguistic, cultural, institutional, geographic, and other barriers to meaningful participation.”²³ The sad fact is that the Commission has made no effort to inform potentially affected EJ communities of its new environmental and safety analyses, let alone make the analyses “readily accessible” to them. Rather than implementing an “effective public participation strategy,” the Commission has shut the door on public participation by embedding its new analyses in the Order.

10. I am particularly troubled that neither the general public nor the newly identified EJ communities will have a meaningful opportunity to comment on the Commission’s new air monitoring and mitigation condition or other potential mitigation measures. CEQ’s guidance on EJ specifically instructs that “members of the affected communities should be consulted” when an agency is “identifying and developing potential mitigation measures to address environmental justice concerns.”²⁴

11. To give credit where it is due, the Commission did provide an opportunity for comment on the project sponsors’ responses to certain of Commission staff’s environmental information requests (EIRs).²⁵ However, there was *no* opportunity to comment on critical air modeling information used in the Commission staff’s cumulative air impacts analysis because that information was submitted after the comment period closed.²⁶ The necessity for, and value of, allowing public comment on the new analyses

²¹ Council on Env’tl. Quality, *Guidance for Incorporating Environmental Justice Concerns in EPA’s NEPA Compliance Analysis* 28 (1998) (1998 CEQ Guidance).

²² 1994 EJ EO § 5-5(c) (emphasis added); *see also* 1994 EJ EO § 5-5(b) (stating that meeting this public accessibility standard may require, “whenever practicable and appropriate,” “translat[ing] crucial public documents, notices, and hearings related to human health or the environment for limited English speaking populations”).

²³ CEQ, *Environmental Justice: Guidance Under the National Environmental Policy Act* 9 (1997) (1997 CEQ Guidance) (emphasis added).

²⁴ 1998 CEQ Guidance at 36.

²⁵ *See* Order at P 83.

²⁶ *See id.* at P 87 (“[O]n January 20 and 27, 2023, Rio Grande submitted additional

is evinced by the fact that Vecinos para el Bienestar de la Comunidad Costera and Sierra Club submitted a joint comment letter identifying discrepancies in Texas LNG's and Rio Grande LNG's cumulative air impacts modeling that led staff to direct the companies to reconcile their analyses and submit new cumulative air impact modeling.²⁷

12. At the Commission's March 29, 2023, Roundtable on Environmental Justice and Equity in Infrastructure Permitting, all Commissioners acknowledged the importance of appropriately addressing EJ concerns in our proceedings. In this of all cases, where the D.C. Circuit remanded our inadequate EJ analysis, we should translate our good intentions into action and provide EJ communities a meaningful opportunity to participate. Considering our discussion at the Roundtable of how to facilitate EJ communities' full participation, it is especially disheartening that the Order rejects requests to hold public meetings, with Spanish translation, to hear communities' concerns about the projects and our new analyses.²⁸

13. I am sensitive to the comments in the record, from project sponsors and others, that the Commission has unduly delayed its response to the court's remand in *Vecinos* and that the delay may postpone benefits the projects offer, including local employment opportunities. More generally, I desire to efficiently process applications for approval of natural gas and LNG projects, as well as the Commission's response to any court directives relating to project approvals. No member of the current Commission had control over the process for, or timing of, the Commission's response to the *Vecinos* court's remand. The question now is what to do with the hand we have been dealt. Taking procedural shortcuts is the wrong answer. In failing to meet its statutory and regulatory obligations, the Commission invites litigation challenging the Order, potentially leading to further delay. For the sake of all stakeholders, including project sponsors and communities impacted by our decisions, we must do better.

14. Finally, I dissent from the Commission's explanation of why it cannot determine the significance of GHG emissions associated with the Rio Grande LNG Terminal and Rio Bravo Pipeline.²⁹ This section of the Order could be interpreted as the Commission's definitive conclusion that the Social Cost of GHGs protocol is inherently unsuitable for determining the significance of GHG emissions associated with natural gas and LNG

information regarding the air modeling discrepancies."), P 83 ("[I]nitial comments were due no later than October 21, 2022, and reply comments not later than November 4, 2022.").

²⁷ See *id.* at PP 87, 137.

²⁸ See *id.* at P 85.

²⁹ See *id.* at PP 92-93, 101.

infrastructure projects. Moreover, the Order suggests that there is no other “currently scientifically accepted method that would enable the Commission to determine the significance of reasonably foreseeable GHG emissions.”³⁰ In other recent certificate orders, the Commission has explained that it is not determining the significance of GHG emissions because the issue of how to do so is under consideration in the docket for the Commission’s draft GHG Policy Statement.³¹ This Order does not say that. Readers therefore might wonder whether this Order has effectively decided some of the central issues raised in the GHG Policy Statement docket.³²

15. I do not know whether the Social Cost of GHGs protocol or another tool can or should be used to determine significance. That is because the Commission has not seriously studied the answer to that question. The majority has simply decided the method does not work, with no explanation of why the Commission departs from the approach so recently taken in other certificate orders.³³ We have yet to address the voluminous record in the GHG Policy Statement docket, including comments that speak to this question. What I do know is that we should decide the important unresolved issues relating to our assessment of GHG emissions through careful deliberation in a generic proceeding with full transparency.

For the foregoing reasons, I respectfully dissent.

Allison Clements
Commissioner

³⁰ *Id.* at P 93.

³¹ *See, e.g., Transcon. Gas Pipe Line Co.*, 182 FERC ¶ 61,006, at P 73 & n.174 (2023); *Columbia Gas Transmission, LLC*, 182 FERC ¶ 61,171, at P 46 & n.93 (2023).

³² *See* Docket No. PL21-3.

³³ To depart from prior precedent without explanation violates the Administrative Procedure Act. *See, e.g., West Deptford Energy, LLC v. FERC*, 766 F.3d 10, 17 (D.C. Cir. 2014) (“[T]he Commission cannot depart from [prior] rulings without providing a reasoned analysis.”) (citations omitted).

185 FERC ¶ 61,080
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Willie L. Phillips, Acting Chairman;
James P. Danly, Allison Clements,
and Mark C. Christie.

Rio Grande LNG, LLC
Rio Bravo Pipeline Company, LLC

Docket Nos. CP16-454-006
CP16-455-003
CP20-481-001

ORDER ADDRESSING ARGUMENTS RAISED ON REHEARING

(Issued October 27, 2023)

1. On April 21, 2023, the Commission issued an order on remand¹ reaffirming that Rio Grande LNG, LLC's (Rio Grande) proposed liquified natural gas terminal project (Rio Grande LNG Terminal) and Rio Bravo Pipeline Company, LLC's (Rio Bravo) proposed pipeline project (Rio Bravo Pipeline Project) (together, projects), as amended, are, respectively, not inconsistent with the public interest under section 3 of the Natural Gas Act (NGA)² and required by the public convenience and necessity under NGA section 7.³ On May 22, 2023, Vecinos para el Bienestar de la Comunidad Costera, Sierra Club, City of Port Isabel, and the Carrizo/Comecrudo Tribe of Texas (together, Sierra Club) filed a timely rehearing of the Remand Order.

2. Pursuant to *Allegheny Defense Project v. FERC*,⁴ the rehearing request filed in this proceeding may be deemed denied by operation of law. However, as permitted by NGA

¹ *Rio Grande LNG, LLC*, 183 FERC ¶ 61,046 (2023) (Remand Order).

² 15 U.S.C. § 717b.

³ *Id.* § 717f.

⁴ 964 F.3d 1 (D.C. Cir. 2020) (en banc).

section 19(a),⁵ we are modifying the discussion in the Remand Order and continue to reach the same result in this proceeding, as discussed below.⁶

I. Background

3. On November 22, 2019, the Commission authorized Rio Grande to construct and operate a new liquified natural gas (LNG) terminal designed to produce up to 27 million metric tonnes per annum (MTPA) of LNG for export pursuant to NGA section 3.⁷ The project facilities will occupy 750.4 acres of land on a 984.2-acre parcel on the northern embankment of the Brownsville Ship Channel in Cameron County, Texas,⁸ and include five natural gas liquefaction trains, each with a nominal capacity of 5.4 MTPA;⁹ four full-containment LNG storage tanks; two LNG carrier loading berths; one 1,500-foot-diameter turning basin; facilities for loading and unloading trucks; and other support

⁵ 15 U.S.C. § 717r(a) (“Until the record in a proceeding shall have been filed in a court of appeals, as provided in subsection (b), the Commission may at any time, upon reasonable notice and in such manner as it shall deem proper, modify or set aside, in whole or in part, any finding or order made or issued by it under the provisions of this chapter.”).

⁶ *Allegheny Def. Project*, 964 F.3d at 16-17. The Commission is not changing the outcome of the Remand Order. See *Smith Lake Improvement & Stakeholders Ass’n v. FERC*, 809 F.3d 55, 56-57 (D.C. Cir. 2015).

⁷ *Rio Grande LNG, LLC*, 169 FERC ¶ 61,131, at P 5 (2019) (Authorization Order).

⁸ The parcel is owned by the Brownsville Navigational District, a political subdivision of Texas that operates the Port of Brownsville. Rio Grande’s parent company, NextDecade, executed an Option to Lease the acreage from the Brownsville Navigational District. Authorization Order, 169 FERC ¶ 61,131 at P 7 n.12.

⁹ On April 15, 2020, Rio Grande requested that the Commission approve a design change in its implementation plan for the Rio Grande LNG Terminal to reduce the Rio Grande LNG Terminal’s number of liquefaction trains from six to five and to optimize parts of the liquefaction design to increase the liquefaction capacity of the five remaining trains from 4.5 million metric tons per annum (MTPA) to 5.4 MTPA each, while keeping the total export capacity at 27 MTPA. The Commission granted that request, but we note that the 2019 authorization, as reviewed by the D.C. Circuit in *Vecinos*, authorized and considered the impacts associated with six natural gas liquefaction trains. See *Rio Grande LNG, LLC*, 174 FERC ¶ 61,048, at P 4 (2021) (rehearing order affirming design changes authorized by Commission staff’s August 13, 2020 Letter Order).

facilities.¹⁰ In the same order, the Commission also issued a certificate of public convenience and necessity, under NGA section 7, to Rio Bravo to construct and operate a new interstate natural gas pipeline system designed to provide up to 4.5 billion cubic feet per day (Bcf/d)¹¹ of firm natural gas transportation capacity from several interconnects in the vicinity of the Agua Dulce Hub in Nueces County, Texas, to Rio Grande's LNG export terminal (Rio Bravo Pipeline).

4. On December 23, 2019, Sierra Club and several other parties jointly requested rehearing of the Authorization Order. On January 23, 2020, the Commission denied rehearing.¹² Sierra Club petitioned for review of the Authorization and Rehearing Orders in the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit).

5. While Sierra Club's petition for review was pending before the court, Rio Bravo filed an application on June 16, 2020, under section 7 of the NGA, to amend its certificate for the Rio Bravo Pipeline Project (Amendment Project).¹³ Rio Bravo proposed to reduce the number of authorized compressor stations from three to one, increase the horsepower at the remaining compressor station, eliminate certain measurement facilities, extend both parallel pipelines by 0.2 mile, change the operating pressure of the pipelines and header system, and increase the diameter of one of the two pipelines from 42 inches to 48 inches.¹⁴ The Commission acted on Rio Bravo's application as part of the Remand Order.

6. On August 3, 2021, the D.C. Circuit remanded the Authorization and Rehearing Orders, holding that the Commission's National Environmental Policy Act (NEPA) analyses of the project's impacts on climate change and environmental justice communities were deficient.¹⁵ On remand, the court directed the Commission to: (1) explain whether the Council on Environmental Quality's (CEQ) regulations at 40

¹⁰ Authorization Order, 169 FERC ¶ 61,131 at PP 6-7.

¹¹ 4.5 Bcf/d is the equivalent of 4,500,000 dekatherms (Dth) per day assuming one Dth equals one Mcf of gas.

¹² *Rio Grande LNG, LLC*, 170 FERC ¶ 61,046 (2020) (Rehearing Order).

¹³ Rio Bravo, Application to Amend Certificate of Public Convenience and Necessity, Docket No CP20-481-000 (filed June 16, 2020) (Pipeline Amendment Application).

¹⁴ Remand Order, 183 FERC ¶ 61,046 at P 13.

¹⁵ *Vecinos Para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321, 1331 (D.C. Cir. 2021) (*Vecinos*).

C.F.R. § 1502.21(c) require the Commission, in its environmental analysis of the projects, to apply the social cost of carbon protocol or some other analytical framework, as “generally accepted in the scientific community” within the meaning of the regulation; and (2) explain why the Commission chose to analyze the projects’ impacts only on environmental justice communities within a two-mile radius, or, in the alternative, to analyze the projects’ impacts on communities within a different radius from each project site and to determine whether the Commission’s environmental justice conclusion still holds.¹⁶ Additionally, because the Commission’s analyses of the project’s impacts on climate change and environmental justice communities were deficient, the court directed the Commission to revisit its determinations about the public interest under NGA section 3 and about the public convenience and necessity under NGA section 7.¹⁷

7. Following the D.C. Circuit’s decision, Commission staff issued environmental information requests to Rio Grande on February 3, August 16, and August 31, 2022, and to Rio Bravo on May 2 and May 10, 2022. Rio Grande filed responses on March 3, August 22, September 15, and November 2, 2022, and Rio Bravo filed a response on June 1, 2022. Commission staff sought public comment on information provided in these responses.¹⁸

8. Commission staff issued additional environmental information requests to Rio Grande on January 6 and February 10, 2023, and to Rio Bravo on December 9, 2022, and on January 9 and February 15, 2023. Rio Grande filed responses on January 20, January 27, February 13, and February 14, 2023 and Rio Bravo provided additional responses on December 29, 2022, and January 1 and February 21, 2023.

9. In the Remand Order, the Commission addressed the issues remanded to the Commission by the court in *Vecinos* and supplemented the environmental analysis of both the Rio Grande LNG Terminal and the Rio Bravo Pipeline Project, by: (1) addressing the argument regarding the social cost of carbon and 40 C.F.R. § 1502.21(c);

¹⁶ *Id.* at 1329-31. 40 C.F.R. § 1502.21(c) (2022) provides that “[i]f the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because . . . the means to obtain it are not known, the agency shall include within the environmental impact statement . . . [t]he agency’s evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community.” In its 2020 rulemaking, CEQ redesignated § 1502.22, “[i]ncomplete or unavailable information” as § 1502.21 in the final rule.

¹⁷ *Vecinos*, 6 F.4th at 1329-31.

¹⁸ See *Rio Grande LNG, LLC; Rio Bravo Pipeline Co., Notice Seeking Public Comment on Responses to Information Requests*, 87 Fed. Reg. 60,669 (Oct. 6, 2022) (Notice Seeking Public Comment).

and (2) updating our analysis of the projects' environmental justice impacts consistent with the Commission's current practice. In the Remand Order, the Commission determined that the Rio Grande LNG Terminal, as conditioned in the Authorization Order and modified in the Remand Order, is not inconsistent with the public interest.¹⁹ Additionally, the Commission determined that the Rio Bravo Pipeline Project, as conditioned in the Authorization Order and as amended and modified in the Remand Order, is required by the public convenience and necessity.²⁰

II. Procedural Issues

10. On June 6, 2023, Rio Grande and Rio Bravo each filed a motion for leave to answer and answer to Sierra Club's rehearing request. The Commission's Rules of Practice and Procedure generally prohibit answers to a request for rehearing.²¹ Accordingly, we deny Rio Grande's and Rio Bravo's motions and reject their answers.

III. Discussion

11. On rehearing, Sierra Club argues that the Commission erred in the Remand Order by failing to: (1) consider issues that were not remanded by the court; (2) address Rio Grande's plans to incorporate carbon capture and sequestration (CCS) into the project; (3) properly consider air pollution and environmental justice impacts; (4) properly consider greenhouse gas (GHG) emissions impacts; (5) properly consider information concerning the Rio Bravo Pipeline Project; and (6) supplement its 2019 final environmental impact statement (Final EIS) based on new information concerning SpaceX.

A. Scope of the Remand

12. Sierra Club asserts that once the Commission reacquired jurisdiction on remand, the Commission was not limited to only considering the two issues identified by the D.C. Circuit.²² Sierra Club argues that the project and environmental context have changed since the Commission's prior approval and thus on remand the Commission should

¹⁹ Remand Order, 183 FERC ¶ 61,046 at P 208.

²⁰ *Id.*

²¹ 18 C.F.R. § 385.713(d)(1) (2022); 18 § 385.213(a)(2) (2022).

²² *See* Rehearing Request at 6-9.

consider a broader range of issues²³ and that the Commission had discretion to reconsider the whole of its original decision once it reacquired jurisdiction.²⁴ Finally, Sierra Club states that, to the extent that the Commission sought new information regarding air quality impacts to environmental justice communities, the Commission should have provided the public a meaningful opportunity to review and comment on that new information.²⁵

13. On remand, the Commission is under no legal obligation here to revisit any portion of its original decision other than those issues that are subject to the court's mandate. To the contrary, as explained in the Remand Order, the Commission may reject arguments outside the scope of the remand.²⁶ Sierra Club's citation to *Michigan Gas* is thus inapposite because, while that case recognizes the Commission's *discretion* to consider a broader range of issues on remand, its holding does not *compel* Commission action outside the scope of a court's remand.²⁷ The Commission reasonably limited its analysis to the two issues subject to the court's remand—whether the social cost of GHG or similar protocol should be used and the scope of the Commission's environmental justice analysis.²⁸

14. To the extent that the Commission considered new information that bore upon the two issues that were subject to the court's remand, the public had a meaningful opportunity to review and comment on such information. As noted above, on September 30, 2022, Commission staff issued a notice seeking public comments on Rio Grande's and Rio Bravo's responses to Commission staff's information requests.²⁹ The

²³ See *id.* at 8-10 (referencing examples including various air pollution and environmental justice issues, and NEPA supplementation in the context of SpaceX).

²⁴ *Id.* at 9 (citing *Se. Mich. Gas Co. v. FERC*, 133 F.3d 34, 38 (D.C. Cir. 1998) (*Michigan Gas*)).

²⁵ *Id.* at 9.

²⁶ See Remand Order, 183 FERC ¶ 61,046 at P 88; see also *Fla. Se. Connection, LLC*, 164 FERC ¶ 61,099, at P 9 (2018) (dismissing request for rehearing to the extent it presented arguments “beyond the remand scope” of the court's opinion).

²⁷ See *Michigan Gas*, 133 F.3d at 38 (stating only that the Commission has “the *discretion* to reconsider the whole of its original decision” on remand) (emphasis added).

²⁸ Remand Order, 183 FERC ¶ 61,046 at P 88.

²⁹ Notice Seeking Public Comment, 87 Fed. Reg. at 60,669.

Commission received over 150 comments in response to this notice,³⁰ including from Sierra Club.³¹ Sierra Club also filed other, unsolicited comments during the pendency of the remand.³² The Commission reasonably concluded that the record was sufficient for the Commission to address the issues identified in the court's remand,³³ which, as discussed above, is committed to the Commission's discretion.³⁴ Further, we note that Sierra Club fails to cite any precedent supporting its contention that the Commission's actions on remand were deficient. Accordingly, we reject the argument that the public was not afforded an adequate opportunity to review and comment on the new information.

B. Carbon capture and sequestration facilities

15. On November 17, 2021, Rio Grande submitted an application to amend its 2019 authorization to incorporate carbon capture and sequestration systems into the approved site and design of the Rio Grande LNG Terminal (CCS System Amendment). On December 2, 2022, the Commission staff issued a notice of intent to prepare an environmental assessment for the CCS System Amendment.³⁵ Although Commission staff anticipated issuing the EA in May 2023, the schedule has been suspended while Rio Grande develops responses to several data requests.³⁶ The Remand Order did not address the content of this application or the Commission's ongoing review.

16. Sierra Club argues that before the Commission could reaffirm its approval of the Rio Grande LNG Terminal, the Commission was required first to consider Rio Grande's pending proposal for the CCS System Amendment. Sierra Club claims that the

³⁰ See Remand Order, 183 FERC ¶ 61,046 at P 85.

³¹ See Sierra Club October 19, 2022 Comments.

³² See Sierra Club March 17, 2023 Comments; Sierra Club October 19, 2022 Comments.

³³ Remand Order, 183 FERC ¶ 61,046 at P 85.

³⁴ See *Spire STL Pipeline LLC*, 181 FERC ¶ 61,232, at P 20 (2022) ("Agencies on remand, unless otherwise directed by the court, may proceed as needed to supplement the record and redress issues identified by the court.").

³⁵ See 87 Fed. Reg. 75,248 (Dec. 8, 2022).

³⁶ See 88 Fed. Reg. 24, 407 (Apr. 20, 2023).

Commission is obligated to consider the amendment now because, under NEPA, it is an action connected to the proposals that are the subject of the remand proceeding.³⁷

17. Rio Grande's CCS System Amendment is beyond the scope of the Commission's remand proceeding. As noted above, in the Remand Order the Commission reasonably limited its analysis to the two issues subject to the court's remand—whether the social cost of GHG or similar protocol should be used and the scope of the Commission's environmental justice analysis. The Commission's focus was consistent with its obligations under the law.³⁸ As Sierra Club's CCS argument is outside the limited scope of the remand, and since the Commission is evaluating the proposed CCS System Amendment in a separate, pending docket,³⁹ this argument is not properly before us and we reject it.

18. Nevertheless, Sierra Club's argument also fails on the merits because the CCS System Amendment is not a connected action with the Rio Grande LNG Terminal. "An agency impermissibly 'segments' NEPA review when it divides connected, cumulative, or similar federal actions into separate projects and thereby fails to address the true scope and impact of the activities that should be under consideration."⁴⁰ "The purpose of this requirement is to prevent agencies from dividing one project into multiple individual actions each of which individually has an insignificant environmental impact, but which collectively have a substantial impact."⁴¹ The CEQ's regulations define connected

³⁷ Rehearing Request at 10-15.

³⁸ Remand Order, 183 FERC ¶ 61,046 at P 16.

³⁹ See Rio Grande LNG, LLC, Application, Docket No. CP22-17-000 (filed Nov. 17, 2021). Commission staff published a notice soliciting comments from interested stakeholders on the Rio Grande's CCS System Amendment. See *Rio Grande LNG, LLC; Notice of Application for Limited Amendment and Establishing Intervention Deadline*, 86 Fed. Reg. 68,659 (Dec. 3, 2021). In that proceeding, Sierra Club raised several arguments including that: (i) Rio Grande did not demonstrate a complete or viable proposal for CCS; (ii) even with CCS, LNG exportation is not a climate solution; (iii) CCS will have other negative impacts; and (iv) various process issues. Sierra Club, Protest, Docket No. CP22-17-000 (filed Dec. 20, 2021). Those comments will be addressed in that proceeding, consistent with the Commission's obligations under the Administrative Procedure Act.

⁴⁰ *Del. Riverkeeper Network v. FERC*, 753 F.3d 1304, 1313 (D.C. Cir. 2014).

⁴¹ *Myersville Citizens for a Rural Cmty., Inc. v. FERC*, 783 F.3d 1301, 1326 (D.C. Cir. 2015) (*Myersville*) (quoting *Nat. Res. Def. Council, Inc. v. Hodel*, 865 F.2d 288, 297 (D.C. Cir. 1988)).

actions as those that: (i) “[a]utomatically trigger other actions that may require environmental impact statements;” (ii) “[c]annot or will not proceed unless other actions are taken previously or simultaneously;” or (iii) “[a]re interdependent parts of a larger action and depend on the larger action for their justification.”⁴² The Rio Grande LNG Terminal and CCS System Amendment do not meet any of these criteria.

19. As an initial matter, the Rio Grande LNG Terminal did not “automatically trigger” the CCS System Amendment, nor vice versa, because the Rio Grande LNG Terminal was proposed and authorized as not inconsistent with the public interest years before the CCS System Amendment was filed. Additionally, the Commission’s consideration of the Rio Grande LNG Terminal and the CCS System Amendment did not overlap. The Commission completed a comprehensive analysis of the Rio Grande LNG Terminal between 2016 and 2019, culminating in the Final EIS and the Authorization Order. The Commission issued its order authorizing the Rio Grande LNG Terminal on November 22, 2019, and an order on rehearing on January 23, 2020. Rio Grande filed its CCS System Amendment in November 2021. It is still pending environmental review. As such, there is no “temporal overlap” between the two projects.⁴³

20. Finally, the Rio Grande LNG Terminal has “substantial independent utility.” In other words, it will serve a significant purpose even if the CCS System Amendment is not built.⁴⁴ There is independent utility when a project “can stand alone without requiring construction of the other [projects] either in terms of the facilities required or of

⁴² 40 C.F.R. § 1501.9(e)(1) (2022) (formerly 40 C.F.R. § 1508.25(a)(1) (2022)).

⁴³ See *Food & Water Watch v. FERC*, 28 F.4th 277, 291 (D.C. Cir. 2022) (*Food & Water Watch*) (stating that when considering whether natural gas infrastructure projects are connected actions, courts consider “the projects’ degree of physical and functional interdependence, and their temporal overlap”) (internal citations omitted); see also *E. Shore Nat. Gas Co.*, 181 FERC ¶ 61,233, at P 32 (2022) (finding that the Commission was not required to consider a proposed project that “is not imminent”) (citing *City of Bos. Delegation*, 897 F.3d 241, 252 (D.C. Cir. 2018) (finding the Commission did not impermissibly segment its environmental review of three upgrade projects on the same pipeline system where the Commission’s review of the projects was not contemporaneous and where the projects had substantial independent utility)).

⁴⁴ *Coal. on Sensible Transp., Inc. v. Dole*, 826 F.2d 60, 69 (D.C. Cir. 1987) (“The proper question is whether one project will serve a significant purpose even if a second related project is not built.”) (citations omitted); see also *City of Bos. Delegation v. FERC*, 897 F.3d 241, 252 (“[W]e consider ‘whether one project will serve a significant purpose even if a second related project is not built.’”) (citation omitted).

profitability.”⁴⁵ The Commission’s review and authorization of the Rio Grande LNG Terminal was a standalone primary action; the Commission found that the terminal would not be inconsistent with the public interest before the CCS System Amendment was ever filed. The terminal has independent utility regardless of the outcome of the CCS System Amendment proceeding. Put another way, the terminal could exist and operate without CCS technology ever being implemented. The proposal to add CCS facilities is a later, secondary action⁴⁶ that Rio Grande asserts will further reduce those environmental impacts of the terminal which the Commission has found to be acceptable.⁴⁷ For these reasons, the Commission is not required to evaluate these actions together as “connected actions” under NEPA.⁴⁸

21. Sierra Club’s argument that the Commission must supplement the Rio Grande LNG Terminal’s Final EIS to address significant new information about the CCS System Amendment, including an evaluation of alternatives that were not previously available, such as alternatives that would reduce greenhouse gas emissions,⁴⁹ is an unpersuasive repackaging of its “connected actions” argument. Since the actions are not connected for the purpose of NEPA, and reasonably foreseeable environmental impacts that would

⁴⁵ *O’Reilly v. U.S. Army Corps of Eng’rs*, 477 F.3d 225, 237 (5th Cir. 2007).

⁴⁶ See, e.g., *Columbia Gulf Transmission, LLC*, 180 FERC ¶ 61,206 at P 37 (finding that a project amendment was not connected action); *Penn E. Pipeline Co.*, 171 FERC ¶ 61,229, at PP 17-18 (2020) (same); *Sabine Pass Liquefaction, LLC*, 144 FERC ¶ 61,099, at P 34 (2013) (same).

⁴⁷ Although Sierra Club is correct that CCS System Amendment will not proceed without the construction of the Rio Grande LNG Terminal, we are not persuaded by Sierra Club’s claims that the Rio Grande LNG Terminal would not proceed without the CCS facilities. Rehearing Request at 10-11, 14; *id.* at 11 n.14 (citing “Rio Grande LNG,” <https://www.next-decade.com/rio-grande-lng/> (last visited May 22, 2023); NextDecade Corporation, *Accelerating the Path to a Net-Zero Future* (August 2022), <https://investors.next-decade.com/static-files/d4fb70e5-e639-4859-b2bc-a62be1cb5435>). As support, Sierra Club references statements made in emails and marketing materials by Rio Grande’s parent company, NextDecade Corporation (NextDecade), but Sierra Club fails to cite to record evidence to demonstrate that the Rio Grande LNG Terminal cannot proceed without the CCS facilities. *Minisink Residents for Env’tl. Pres. & Safety*, 762 F.3d 97, 108 (D.C. Cir. 2014) (affirming the Commission’s rejection of a pipeline company’s PowerPoint presentation as “merely a marketing document”).

⁴⁸ Staff is preparing an EA for the CCS System Amendment, which we will address at the appropriate time.

⁴⁹ Rehearing Request at 14-15, 33-35, 47-48.

potentially result from the CCS System Amendment will be considered in a separate NEPA document as part of that proceeding, the Commission is under no legal obligation to supplement the Final EIS on the already authorized LNG Terminal.

22. Under CEQ's regulations,

[a]gencies:

(1) Shall prepare supplements to either draft or final environmental impact statements if a major Federal action remains to occur, and:

(i) The agency makes substantial changes to the proposed action that are relevant to environmental concerns; or

(ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.⁵⁰

First, the Commission's action on remand was to correct errors identified by the court. There are no substantial changes to the proposed action that are relevant to environmental concerns. The fact that there is a later application has no bearing on the authorization in this proceeding and does not amount to significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

23. Moreover, Sierra Club's reliance on *Alaska Wilderness Recreation and Tourism Association v. Morrison*⁵¹ is misplaced. In *Morrison*, the court required the agency to complete a supplemental EIS in light of significantly changed conditions, namely the cancellation of a long-term contract upon which the agency's chosen alternative depended.⁵² Thus, the agency's action depended on a rationale that was undercut by a change in circumstances. By contrast, here, the Commission's rationale to authorize the Rio Grande LNG Terminal is not undercut by Rio Grande's filing of its CCS System Amendment application. To the contrary, the evaluation of alternatives in the Final EIS was not influenced by any assumption or determination about carbon capture and sequestration technology. The information in Rio Grande's filings for the CCS System Amendment is pending review and will be fully considered as part of that proceeding.

⁵⁰ 40 C.F.R. § 1502.9(d).

⁵¹ 67 F.3d 723 (9th Cir. 1995) (*Morrison*).

⁵² *Morrison*, 67 F.3d at 728-30.

C. Air Quality and Environmental Justice

1. Changes in Emissions Data

24. Sierra Club argues that the Commission erred by using air pollution emission and modeling data in the Remand Order that differed from that in the Final EIS without explaining what factors caused the changes to the data or providing the public an opportunity to comment on it.⁵³ For example, Sierra Club notes that Rio Grande reduced its estimate of direct terminal nitrogen oxides (NOx) emissions by 46% compared to the estimate in the Final EIS and disputes that the design change from six liquefaction trains to five could explain that reduction in emissions.⁵⁴ Sierra Club also states that Rio Grande's NOx emissions estimate from marine vessels is significantly lower than that in the Final EIS, as are estimates of GHGs and other criteria pollutants, and that Rio Grande did not provide a reasoned explanation for the reductions.⁵⁵

25. We disagree that these revised estimates are unsupported. The 2009 EPA document⁵⁶ used as the basis of Rio Grande's marine vessel NOx emission estimates reported in the Final EIS specifies a NOx emission factor for diesel-powered tug boats of 13.2 grams per kilowatt-hour (g/kWh), whereas the updated 2022 EPA document,⁵⁷ superseding the 2009 version and used as the basis of Rio Grande's revised emission estimates, specifies a NOx emission factor for harbor craft (including tug boats) Tier 4 engines of 1.3 g/kWh. Given that the updates to Rio Grande's emissions estimates are based on updated EPA-estimated emission factors, we find that the revised estimates are properly supported. Additionally, the emissions estimates provided by Rio Grande are consistent with potential emissions estimates included within Rio Grande LNG's updated

⁵³ Rehearing Request at 15-16. As discussed above, we disagree that the public was not afforded an adequate opportunity to review and comment on the new information. *See supra* P 14.

⁵⁴ *Id.* at 15.

⁵⁵ *Id.* at 15-16.

⁵⁶ EPA, *Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories: Final Report* (Apr. 2009), <https://www.epa.gov/sites/default/files/2016-06/documents/2009-port-inventory-guidance.pdf>.

⁵⁷ EPA, *Ports Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions* (Apr. 2022), <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P1014J1S.pdf>.

air quality permit, issued on November 13, 2020, by the Texas Commission on Environmental Quality.⁵⁸

2. PM2.5 Estimates

26. Sierra Club questions Rio Grande's reliance on baseline data from an air monitor located 28 kilometers from the terminal site rather than using a closer air monitor maintained by the Texas Commission on Environmental Quality in Isla Blanca.⁵⁹ Sierra Club argues that if Rio Grande's analysis of the cumulative impact of its operating emissions were modified to use the higher concentrations of particulate matter with an aerodynamic diameter of less than 2.5 microns (PM2.5) recorded at the Isla Blanca monitor, this would show a potential violation of the annual and hourly National Ambient Air Quality Standards (NAAQS) for PM2.5.⁶⁰ Sierra Club maintains that the Commission must incorporate data from the Isla Blanca monitor to fulfill the Commission's obligation under NEPA to "make use of reliable existing data and resources."⁶¹ Sierra Club states that the Isla Blanca monitor more accurately reflects the current PM2.5 concentrations near the project site and so more accurately discloses what the project's impacts will be on local air quality and the health and safety of nearby residents.⁶²

27. We find that the Isla Blanca monitor was appropriately excluded from the air quality analysis because it appears that the monitor did not have three years of data to calculate annual and 24-hour PM2.5 design values as contemplated by EPA and the Texas Commission on Environmental Quality (TCEQ).⁶³ The EPA lists the Isla Blanca

⁵⁸ Tex. Comm'n on Env'tl. Quality, TCEQ Records Online, https://records.tceq.texas.gov/cs/idcplg?IdcService=TCEQ_EXTERNAL_SEARCH_GET_FILE&dID=5888297&Rendition=Web.

⁵⁹ Rehearing Request at 16-17.

⁶⁰ *Id.* at 17-18.

⁶¹ *Id.* at 18-19 (quoting 40 C.F.R. § 1502.23 (2022)).

⁶² *Id.* at 19.

⁶³ *See* 40 C.F.R. Pt. 50, App. N, §§ 4.1-4.2 (stating that three years of valid data are required to produce a valid annual or 24-hour design value); EPA, Guidance for Ozone and Fine Particulate Matter Permit Modeling at 50 (Jul. 29, 2022), https://www.epa.gov/system/files/documents/2022-07/Guidance_for_O3_PM2.5_Permit_Modeling.pdf ("The PM2.5 design value for the annual averaging period is based on the 3-year average of the annual average PM2.5 concentrations, while the PM2.5 design value for the 24-hour averaging period is based

monitor as having a beginning or start date for valid design values of October 7, 2019,⁶⁴ which means that the monitor did not have three years of data at the time the analysis was completed.⁶⁵ Therefore, we conclude that the use of the AQS monitor 48-061-0006 in Brownsville (Brownsville Monitor) for calculating PM2.5 concentrations was appropriate. In addition, because the Brownsville Monitor is closer in proximity to environmental justice communities than the Isla Blanca monitor, we find that use of the Brownsville Monitor was adequately representative to identify impacts to potentially affected population centers.⁶⁶

3. Ozone

28. Sierra Club claims that Rio Grande's November 1, 2022 supplemental response containing an updated ozone analysis is insufficient and thus the Commission erred by citing the supplemental response in the Remand Order.⁶⁷ Sierra Club argues that the updated analysis is problematic because it is unclear whether it repeats flaws in the Final EIS. Sierra Club claims that the final EIS improperly excluded cumulative emissions from Texas LNG and emissions from both terminals' marine vessel traffic.⁶⁸

29. Sierra Club's assertion that the ozone analysis in the Final EIS was flawed is contrary to the D.C. Circuit's judgment accompanying its *Vecinos* opinion in which the court explicitly held that "[the Commission] was aware of and adequately considered the

on the 3-year average of the annual 98th percentile 24-hour average PM2.5 concentrations."); TCEQ, Air Quality Modeling Guidelines at 46 (Nov. 2019), <https://www.tceq.texas.gov/assets/public/permitting/air/Modeling/guidance/airquality-mod-guidelines6232.pdf> (stating that PM2.5 modeling should use the most recent three-year average of 98th percentile data for a monitoring site).

⁶⁴ EPA, *Air Quality Design Values*, https://www.epa.gov/sites/default/files/2021-05/pm25_designvalues_2018_2020_final_05_24_21.xlsx.

⁶⁵ See EPA, Interactive Map of Air Quality Monitors, <https://www.epa.gov/outdoor-air-quality-data/interactive-map-air-quality-monitors> (last updated Aug. 22, 2023) (enabling public to view the location of the Brownsville Monitor and Isla Blanca monitor by searching on an interactive map); Rio Grande February 13, 2023 Response to Environmental Information Request (showing the environmental justice census blocks within 50 kilometers of the terminal)..

⁶⁶ See *id.* at 34-35.

⁶⁷ Rehearing Request at 19.

⁶⁸ *Id.*

cumulative ozone effects when it decided to approve the three terminal projects” and that “NEPA demands no more.”⁶⁹ Moreover, as reflected in the Remand Order, Rio Grande updated its ozone analysis in response to an information request from Commission staff to account for the current terminal design.⁷⁰ The analysis submitted by Rio Grande states that it complies with EPA’s current Modeled Emission Rates for Precursors guidance and associated databases and with guidance from the Texas Commission on Environmental Quality.⁷¹ Based upon staff’s review, the Commission has no reason to doubt the asserted bases or the accuracy of the calculations provided by Rio Grande and their calculations fall below the NAAQS threshold for ozone. In light of the court’s prior approval of the Commission’s ozone analysis, we decline to revisit this issue.

4. Reliance on Significant Impact Level modeling

30. Sierra Club states that if the Commission relied on Significant Impact Level (SIL)⁷² modeling to determine either the area of impact or the significance of emissions

⁶⁹ *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 2021 WL 3716769, at *1 (D.C. Cir. Aug. 3, 2021) (unpublished).

⁷⁰ Remand Order, 183 FERC ¶ 61,046 at P 150.

⁷¹ *Id.*

⁷² The NAAQS SILs are defined by EPA under its statutory authority. The EPA has historically interpreted Clean Air Act section 165(a)(3) and associated regulations to mean that a source must have a “significant impact” on ambient air quality in order to cause or contribute to a violation of the NAAQS. *See* 42 U.S.C. § 7475(a)(3). Under this authority, EPA has established its SILs through its regulations and EPA has issued various non-binding guidance documents. *See* 40 C.F.R. § 51.165(b)(2) (stating that “[a] major source or major modification will be considered to cause or contribute to a violation of a national ambient air quality standard when such source or modification would, at a minimum, exceed the following significance levels at any locality that does not or would not meet the applicable national standard” and providing the “significance levels” for NO₂ (annual amount), SO₂ (3-hour averaging time, 24-hour averaging time & annual amount), PM_{2.5} (24-hour averaging time & annual amount), PM₁₀ (24-hour averaging time & annual amount), CO (1-hour averaging time & 8-hour averaging time)); EPA, Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program, (April 17, 2018), https://www.epa.gov/sites/default/files/2018-04/documents/sils_policy_guidance_document_final_signed_4-17-18.pdf. SILs are stated as emissions concentrations. Exceeding a SIL triggers additional analyses to include ambient conditions. SILs are set conservatively to ensure protection of air quality. We clarify that the Commission’s conclusions regarding air quality are based on

from the Rio Grande LNG Terminal, then this is a misuse of this modeling.⁷³ Sierra Club also states that “[i]nsofar as FERC relied on the claim that project contributions to pollution would be below significant impact levels, it is unclear whether FERC included all foreseeable sources of pollution attributable to the projects, rather than merely considering pollution from stationary sources regulated by the Clean Air Act.”⁷⁴

31. As an initial matter, the referenced conclusion regarding SILs was in regard to pollution from stationary sources regulated under the Clean Air Act. We also clarify that although the Remand Order noted the SIL-based radius of impact was 12.8 kilometers, that observation was only to give context for Commission staff’s determination that a more conservative radius of 50 kilometers around the approved Rio Grande LNG Terminal site would be the appropriate unit of geographic analysis for assessing project impacts on environmental justice communities.⁷⁵ Commission staff requested, and Rio Grande provided, a cumulative air model extending to a radius of 50 kilometers.⁷⁶ The model provided by Rio Grande included direct emissions from the Rio Grande LNG Terminal, mobile ship emissions (LNG carrier, tugs, escort vessels), relevant regional monitoring ambient background data, and existing and proposed regional industrial major sources within 50 kilometers of the LNG terminal’s fence line boundary.⁷⁷ This model also included direct emissions from the authorized Texas LNG Terminal and the Texas LNG Terminal’s associated vessel emissions.⁷⁸

32. The Commission acknowledged that the Rio Grande LNG Project would cumulatively add to existing background concentrations of criteria air pollutants within the regional airshed, but found that the total concentration of background plus worst-case modeled emissions from sources within the 50-kilometer radius, including emissions from both the Rio Grande LNG Terminal and Texas LNG Terminal, would remain under applicable NAAQS thresholds, which are meant to protect sensitive populations.⁷⁹

the SILs contained in 40 C.F.R. § 51.165(b)(2).

⁷³ Rehearing Request at 20-25.

⁷⁴ *Id.* at 4.

⁷⁵ Remand Order, 183 FERC ¶ 61,046 at P 118.

⁷⁶ *Id.* PP 73-77.

⁷⁷ *Id.* PP 137, 148.

⁷⁸ *Id.*

⁷⁹ *Id.* P 149. Table 1 in P 149 demonstrates that the worst-case predicted

5. Impacts from Air Pollution Below the NAAQS

33. Sierra Club argues that the Commission cannot assume that if air pollution will not violate the NAAQS, then health impacts related to air pollution will be insignificant.⁸⁰ Sierra Club states that EPA has recognized that concentrations of PM_{2.5}, ozone, NO₂, and CO below the NAAQS can result in adverse health impacts.⁸¹ Sierra Club also notes that the EPA has explained in a guidance document that potential impacts below significance in the NEPA context can be “particularly disproportionate or particularly severe on minority and/or low-income communities.”⁸² Sierra Club states that the Commission is obligated to determine whether factors specific to the identified environmental justice communities, like lack of access to healthcare, might increase the significance of the cumulative impact of emissions from multiple facilities on these communities, regardless of whether ambient air quality remains below the NAAQS.⁸³

34. The D.C. Circuit has affirmed the Commission’s use of NAAQS as a comparative metric in its NEPA analyses. In *Sabal Trail*, the court stated that “[the Commission] appropriately relied on [the U.S. Environmental Protection Agency’s (EPA)] [NAAQS] as a standard of comparison for air-quality impacts,” and “[b]y presenting the project’s expected emissions levels and the NAAQS standards side-by-side, the EIS enabled decisionmakers and the public to meaningfully evaluate the project’s air-pollution effects by reference to a generally accepted standard.”⁸⁴ The D.C. Circuit also made clear in *Sabal Trail* that the Commission’s decision to use the NAAQS as a comparative metric is entitled to deference.⁸⁵ Sierra Club neither explains why the holding in *Sabal Trail*

concentrations for CO, NO₂, PM_{2.5}, PM₁₀, and SO₂ will be below the NAAQS at all locations within 50 kilometers of the Texas LNG Project.

⁸⁰ Rehearing Request at 25.

⁸¹ *Id.*

⁸² *Id.* at 28 (citing EPA Guidance at 3.2.2).

⁸³ *Id.* at 28-29.

⁸⁴ *See Sierra Club v. FERC*, 867 F.3d 1357, 1370 n.7 (D.C. Cir. 2017) (*Sabal Trail*).

⁸⁵ *See id.* (citing *Cmtys. Against Runway Expansion, Inc. v. FAA*, 355 F.3d 678, 689 (D.C. Cir. 2004) (stating that an agency’s “choice among reasonable analytical methodologies is entitled to deference”)); *see also Commonwealth LNG, LLC*, 183 FERC ¶ 61,173, at P 48 (2023) (“The Commission’s comparison to the NAAQS, a generally-accepted standard established by EPA, for its analysis is entitled to deference.”).

would not apply in this case, nor cites any authority for its assertion that NEPA's requirements cannot be satisfied by considering whether the projected criteria pollutant emissions are in compliance with the NAAQS. Thus, we continue to find that operation of the projects, when combined with the other projects within the cumulative geographic scope for air quality, would not cause or contribute to a potential exceedance of the NAAQS on a regional or localized basis and, as a result, environmental justice communities would not experience significant air quality impacts from criteria pollutants covered under the NAAQS during operation of the project.⁸⁶

6. Which Communities May Be Impacted by Air Emissions

35. Sierra Club argues that the Commission fails to identify which environmental justice communities will experience emission impacts as a result of the project.⁸⁷ Sierra Club asserts that it is not sufficient to only identify the environmental justice communities within the Rio Grande LNG and Rio Bravo Pipeline projects' zone of impact, but that the Commission must also identify which of those environmental justice communities will be most affected due to an increase in concentrations of air emissions.⁸⁸

36. As a threshold matter, we note that the Commission, both in the original authorization⁸⁹ and on remand,⁹⁰ found the project's air quality impacts from criteria pollutants covered under the NAAQS to be less than significant.⁹¹ We disagree that the Commission failed to identify which communities may experience air quality impacts as a result of the project.⁹² As explained in the Remand Order, the Commission used a conservative 50-kilometer radius (approximately 31-mile radius) around the Rio Grande

⁸⁶ Remand Order, 183 FERC ¶ 61,046 at P 151.

⁸⁷ Rehearing Request at 29-30.

⁸⁸ *Id.*

⁸⁹ See Authorization Order, 169 FERC ¶ 61,131 at P 104 (citing Final EIS at ES13).

⁹⁰ See Remand Order, 183 FERC ¶ 61,046 at P 206.

⁹¹ See *id.* P 151 ("The operation of the LNG terminal projects when combined with the other projects within the cumulative geographic scope for air quality would not cause or contribute to a potential exceedance of the NAAQS on a regional or localized basis, and therefore would not result in significant adverse air quality impacts on environmental justice communities in the region.") (citations omitted).

⁹² See *id.* P 118, app. B.

LNG and Rio Bravo Pipeline projects to identify the environmental justice communities that could potentially be subject to air quality impacts from the projects.⁹³ The Commission went on to recognize that because emissions from construction activities, like those associated with the projects, are variable and have a greater impact near the source, construction emissions would be highly localized and have the largest impact within a short radius around the construction footprint, but would disperse at further distances.⁹⁴ The Commission also recognized that construction emissions should not adversely affect any residences, the nearest of which are approximately 2.2 miles away, due to the degree of dispersion that would occur prior to any construction emissions reaching that distance.⁹⁵ The Commission specifically identified the Laguna Atascosa National Wildlife Refuge as the location within the 50-kilometer radius that may experience elevated construction impacts.⁹⁶ Accordingly, we find that the Commission sufficiently identified the specific environmental justice areas within the geographic area of review that may experience elevated air quality impacts due to the Rio Grande LNG Terminal and, therefore, reject Sierra Club's argument that anything more was required.⁹⁷

7. Mitigation and Monitoring Plan

37. In the Remand Order, the Commission added a new Environmental Condition 144, which requires Rio Grande, prior to commissioning the project, to file with the Commission a Project Ambient Air Quality Mitigation and Monitoring Plan for particulate matter (PM_{2.5} and PM₁₀) and nitrogen oxide (NO₂) for periods when construction, commissioning and start-up, and operation of the project occur simultaneously.⁹⁸ Sierra Club argues that the environmental condition is insufficient because it orders Rio Grande to produce a mitigation and monitoring plan in the future, and thus the effectiveness of such a plan could not be evaluated prior to the Commission

⁹³ *Id.* PP 118, 165.

⁹⁴ *Id.* PP 139, 165.

⁹⁵ *Id.* P 139. Air emissions typically disperse over distance due to operational factors and weather factors such as wind direction, temperature, and pressure.

⁹⁶ *Id.*

⁹⁷ We observe that other than a generalized reference to a sentence in a CEQ guidance document (with which the Commission followed, as evidenced by the discussion in this section), *see* Rehearing Request at 29 n.84, Sierra Club cites no judicial or Commission precedent for this heightened obligation it purports to impose on the Commission.

⁹⁸ Remand Order, 183 FERC ¶ 61,046 at app. A.

issuing the Remand Order.⁹⁹ Sierra Club contends that this alleged ambiguity precluded the Commission from relying on the environmental condition to determine that air quality impacts would not be significant during periods of concurrent construction and operation of the project, whether the project is considered on its own or cumulatively with the Texas LNG Terminal.¹⁰⁰ Sierra Club also asserts that the Commission must afford the public and the EPA an opportunity to comment on the plan.¹⁰¹

38. Sierra Club's argument fails because it rests on the erroneous premise that the Commission is required to have a final mitigation plan in place before it is able to act. However, the courts have made clear that NEPA does not require the formulation of a specific mitigation plan, only that mitigation is discussed in "sufficient detail to ensure that environmental consequences have been fairly evaluated."¹⁰² "NEPA not only does not require agencies to discuss any particular mitigation plans that they might put in place, it does not require agencies—or third parties—to effect any."¹⁰³ We disagree with Sierra Club's unsupported assertion that the Commission must afford the public and the EPA an opportunity to comment on the plan.¹⁰⁴ The Commission, like other agencies, is generally master of its own calendar and procedures."¹⁰⁵

⁹⁹ Rehearing Request at 30-31.

¹⁰⁰ *Id.*

¹⁰¹ *Id.* at 32-33.

¹⁰² *Sierra Club v. FERC*, 38 F.4th 220, 233 (D.C. Cir. 2022) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989) (*Methow Valley*)); *see also Mayo v. Reynolds*, 875 F.3d 11, 15-16 (D.C. Cir. 2017) (recognizing that the role of NEPA analysis is primarily information-forcing, imposes only procedural requirements, and does not impose a duty on agencies to include "a detailed explanation of the specific measures which will be employed to mitigate the adverse impacts of a proposed action") (quoting *Methow Valley*, 490 U.S. at 353).

¹⁰³ *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 206 (D.C. Cir. 1991) (citing *Methow Valley*, 490 U.S. at 353 & n.16).

¹⁰⁴ Rehearing Request at 32-33.

¹⁰⁵ *Stowers Oil and Gas Co.*, 27 FERC ¶ 61,001, at 61,001 (1984); *see id.* at 61,002 n.3 (collecting precedent); *see, e.g., Vt. Yankee Nuclear Power Corp. v. Nat. Res. Def. Council, Inc.*, 435 U.S. 519, 524 (1978) ("[T]his Court has for more than four decades emphasized that the formulation of procedures was basically to be left within the discretion of the agencies to which Congress had confided the responsibility for substantive judgments."); *Fed. Power Comm'n v. Transcon. Gas Pipe Line Corp.*, 423

39. We also note that, notwithstanding the fact that the findings on which the Commission based its decision to impose Environmental Condition 144 were made public years ago in the Final EIS and Authorization Order, Sierra Club never argued that a mitigation and monitoring plan was necessary to reduce air impacts during periods of overlapping construction and operational activities.¹⁰⁶

U.S. 326, 333 (1976) (“[A] reviewing court may not ... dictat[e] to the agency the methods, procedures, and time dimension of the needed inquiry”); *Richmond Power & Light v. FERC*, 574 F.2d 610, 624 (D.C. Cir. 1978) (“Agencies have wide leeway in controlling their calendars”) (citing *City of San Antonio v. CAB*, 374 F.2d 326, 329 (D.C. Cir. 1967)); *Superior Oil Co. v. FERC*, 563 F.2d 191, 201 (5th Cir. 1977) (deferring to an agency’s choice of procedures and allocation of resources because “[t]he Commission should ‘realistically tailor the proceedings to fit the issues before it’”) (quoting *Mobil Oil Corp. v. Fed. Power Comm’n*, 483 F.2d 1238, 1252 (D.C. Cir. 1973) (quotation marks omitted)); *Bell Tel. Co. v. FCC*, 503 F.2d 1250, 1266 (3d Cir. 1974) (“[T]he ultimate choice of procedure ... is left to the discretion of the agency involved, and will be reversed only for an abuse of discretion.”).

¹⁰⁶ The Commission’s conclusion that precipitated its imposition of Environmental Condition 144—that Commission staff could not exclude the possibility of short-term ambient emission concentrations of PM2.5, PM10, and NO2 at levels above the NAAQS during periods of overlapping construction and operational emissions—is not new as of the Remand Order. To the contrary, Commission staff recognized in the Final EIS that “concurrent emissions from staged construction, commissioning and start-up, and operations of the LNG Terminal would temporarily impact local air quality and could result in exceedances of the NAAQS in the immediate vicinity of the LNG Terminal during these construction years,” Final EIS at 5-15. Commission staff nonetheless concluded that through use of mitigation measures during construction activities and application of best available control technologies, there would be no regionally significant impacts on air quality. *Id.* at 5-16. The Commission adopted these conclusions in the Authorization Order, finding that intermittent exceedances of the NAAQS during overlapping periods of construction and commissioning and/or operational activities, if any (the Commission has not affirmatively concluded that there would be such exceedances), would not be persistent and, accordingly, would not result in regionally significant impacts. See Authorization Order, 169 FERC ¶ 61,131 at PP 103-104.

8. Supplemental EIS

40. Sierra Club advances several arguments in support of its contention that the Commission was required on remand to prepare a supplemental NEPA document for its updated environmental justice analysis, all of which are unavailing.

41. In *Marsh v. Oregon Natural Resources Council*, the Supreme Court explained that an agency's decision to prepare a supplemental EIS is governed by a "rule of reason" and that an agency need not supplement an EIS every time new information comes to light after an EIS is finalized, for to do so "would render agency decisionmaking intractable, always awaiting updated information only to find the new information outdated by the time a decision is made."¹⁰⁷ The D.C. Circuit has similarly made clear that a supplemental EIS "must only be prepared where new information provides a *seriously* different picture of the environmental landscape."¹⁰⁸ An agency's determination of whether a supplemental EIS is needed "implicates substantial agency expertise" and is thus governed by the arbitrary and capricious standard and is entitled to deference.¹⁰⁹

42. Here, the Commission was not required to prepare a supplemental EIS because none of the circumstances to do so under 40 C.F.R. § 1502.9(d) are applicable. In these circumstances, where we have found that there would be no significant impacts on air quality, we believe this is sufficient to demonstrate that section 1502.9(d) does not require a supplemental EIS.¹¹⁰ Moreover, the Commission's decision to not prepare a supplemental NEPA document did not preclude Sierra Club from commenting on Rio Grande's responses to the information requests.¹¹¹ As a party to the docket, Sierra Club

¹⁰⁷ 490 U.S. at 373-74; *see also Mayo v. Reynolds*, 875 F.3d at 16. As we explain above, the standard for the preparation of a supplemental EIS is set forth in CEQ's regulations. *See* 40 C.F.R. § 1502.9(d).

¹⁰⁸ *Stand Up for Cal.! v. Dep't of the Interior*, 994 F.3d 616, 629 (D.C. Cir. 2021) (emphasis in original) (quoting *Friends of Capital Crescent Trail v. FTA*, 877 F.3d 1051, 1060 (D.C. Cir. 2017)) (internal quotation marks omitted).

¹⁰⁹ *Marsh*, 490 U.S. at 375-77; *see also Friends of Capital Crescent Trail*, 877 F.3d at 1059 ("If an agency's decision not to prepare a [Supplemental EIS] turns on a factual dispute the resolution of which implicated substantial agency expertise, the court defers to the agency's judgment.") (quoting *Marsh*, 490 U.S. at 376) (internal quotation marks omitted).

¹¹⁰ *See* 40 C.F.R. § 1502.9(d) ("Agencies shall prepare supplements ... if ... there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts").

¹¹¹ Sierra Club asserts that NEPA required the Commission to solicit public

was on notice of the information when it was filed and could have provided comment on it at any time.¹¹² Indeed, Sierra Club has previously submitted comments in this docket when comment was not expressly sought.¹¹³ For the reasons stated above, a supplemental EIS was not required.

43. Sierra Club next argues that the Commission's finding in the Remand Order that that certain impacts from construction and operation of the project would be disproportionately high and adverse because they would be predominantly borne by environmental justice communities¹¹⁴ necessitates preparation of a supplemental EIS because, in the Final EIS, Commission staff concluded that there was no evidence environmental justice communities would be disproportionately affected by the project.¹¹⁵ This argument fails because it distorts the standard for when a supplemental EIS is required. As discussed above, a supplemental EIS is required only on the basis described in 40 C.F.R. § 1502.9(d). The fact that the Commission found that certain impacts would be predominately borne by environmental justice communities does not require a supplemental EIS.

44. Sierra Club contends that the 367 new environmental justice communities identified by the Commission during the remand proceeding lacked the ability to

comment on information provided in response to an environmental information request issued on January 6, 2023. *See* Rehearing Request at 35 (citing Remand Order, 183 FERC ¶ 61,046 at P 137) (discussing Environmental Information Request for Rio Grande LNG Project, Docket No. CP16-454-000 (issued Jan. 6, 2023) (January 6 EIR)). As discussed above, Sierra Club has not shown that it lacked notice of any information in the record or an opportunity to submit comments.

¹¹² *See Rio Grande LNG, LLC, Rio Bravo Pipeline Co.; Notice of Application*, 81 Fed. Reg. 33,519, 33,520 (May 26, 2016) (Notice of Application) ("A person obtaining party status will be placed on the service list maintained by the Secretary of the Commission and will receive copies of all documents filed by the applicant and by all other parties."); *Notice of Application*, 81 Fed. Reg. at 33,520 (stating that a person need not intervene in the proceeding to have comments considered).

¹¹³ *See* Sierra Club October 19, 2022 Comments; Sierra Club March 31, 2021 Comments. As the D.C. Circuit has explained, "a commenter before the Commission who has ample time to comment on evidence before the deadline for rehearing is not deprived of a meaningful opportunity to challenge the evidence." *Myersville*, 783 F.3d, at 1327 (citing *Minisink*, 762 F.3d at 115).

¹¹⁴ Remand Order, 183 FERC ¶ 61,046 at P 206.

¹¹⁵ Rehearing Request at 36 (citing Final EIS at 4-237).

participate in the proceeding but would have been able to participate if the Commission had prepared a supplemental NEPA document.¹¹⁶ Not so. As stated above, any person may file comments on the docket, even if the person did not formally move to intervene in the proceeding pursuant to the Commission's Rules of Practice and Procedure.¹¹⁷ Moreover, Sierra Club does not offer any example of an individual or group that sought to participate in the proceeding but was unable to do so. We, therefore, reject the argument that a supplemental NEPA document is required to facilitate public participation for the reasons stated above.

45. Finally, Sierra Club reiterates its request for the Commission to hold public meetings and provide information in Spanish,¹¹⁸ arguing that the Commission's declination to do so in the Remand Order ran afoul of its environmental justice mandate under Executive Order 12,898.¹¹⁹ We disagree and find that the Remand Order sufficiently discussed both issues;¹²⁰ accordingly, we summarily dismiss these arguments.¹²¹

¹¹⁶ Rehearing Request at 36.

¹¹⁷ See 18 C.F.R. § 385.214 (2022); *see also supra* P 14.

¹¹⁸ As we noted in the Remand Order, Rio Grande provided materials regarding the project in both English and Spanish and Spanish-speaking representatives were present at both the public scoping and comment meetings held in Port Isabel. Remand Order, 183 FERC ¶ 61,046 at n.195. Additionally, the Commission continues to consider how we can provide greater accessibility to our processes for non-English speaking populations. *Id.* P 85.

¹¹⁹ Rehearing Request at 37-40; *see also* Sierra Club Oct. 19, 2022 Comments at 3-4. Although the Commission is not one of the specified agencies in [Executive Order 12898](#), *see Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*, 59 Fed. Reg. 7629 at § 6-604 ("Independent agencies are requested to comply with the provisions of this order."), the Commission nonetheless addresses environmental justice in its analysis, in accordance with our governing regulations and guidance. See 18 C.F.R. § 380.12(g) (requiring applicants for projects involving significant aboveground facilities to submit information about the socioeconomic impact area of a project for the Commission's consideration during NEPA review); FERC *Guidance Manual for Environmental Report Preparation*, at 4-76 to 4-80 (Feb. 2017), <https://www.ferc.gov/sites/default/files/2020-04/guidance-manual-volume-1.pdf>.

¹²⁰ See Remand Order, 183 FERC ¶ 61,046 at P 85.

¹²¹ See, e.g., *Coal. Of MISO Transmission Customers v. FERC*, 45 F.4th 1004,

9. Revisiting the NGA

46. Sierra Club argues that the Commission failed to consider impacts to environmental justice communities as part of its public interest analysis under the NGA when the Commission reaffirmed the authorizations for the projects.¹²²

47. To revisit the Commission's environmental analysis under NEPA, as directed by the court in *Vecinos*, the Remand Order included a robust environmental justice analysis that builds upon Commission staff's environmental justice analysis in the Final EIS. In the Remand Order, the Commission concluded that environmental justice communities may experience significant cumulative visual impacts, but that all other project-related impacts would be less than significant.¹²³ More specifically, the Commission found that potentially significant cumulative visual impacts would occur when the project was viewed from the Laguna Atascosa National Wildlife Refuge or by passersby travelling on SH-48.¹²⁴ The Commission recognized that Rio Grande would minimize visual impacts from lighting by implementing light reduction techniques.¹²⁵ With this additional analysis, the Commission satisfied its NEPA responsibilities. NEPA itself "does not mandate particular results, but simply prescribes the necessary process."¹²⁶

48. For a proposal under NGA section 7 like the Rio Bravo Pipeline, the Commission applies its Certificate Policy Statement.¹²⁷ The Certificate Policy Statement establishes criteria for determining whether there is a need for a proposed project and whether the

1023 (D.C. Cir. 2022) (stating that the Commission is not obligated on rehearing to repeat its responses to arguments that were already raised and addressed by the Commission in the underlying order); *ISO New England Inc.*, 179 FERC ¶ 61,186, at P 42 (2022) (summarily dismissing arguments raised on rehearing when they were raised and sufficiently addressed in the underlying order).

¹²² Rehearing Request at 40-42.

¹²³ Remand Order, 183 FERC ¶ 61,046 at PP 206-207.

¹²⁴ *Id.* P 163.

¹²⁵ *Id.*

¹²⁶ *See Methow Valley*, 490 U.S. at 350 (If the adverse environmental effects of the proposed action are adequately identified and evaluated, the agency is not constrained by NEPA from deciding that other values outweigh the environmental costs.") (citations omitted).

¹²⁷ Certificate Policy Statement, 88 FERC ¶ 61,227.

proposed project will serve the public interest. The Certificate Policy Statement explains that, in deciding whether to authorize the construction of new pipeline facilities, the Commission balances the public benefits against the potential adverse consequences. The Commission's goal is to appropriately consider the enhancement of competitive transportation alternatives, the possibility of overbuilding, subsidization by existing customers, the applicant's responsibility for unsubscribed capacity, the avoidance of unnecessary disruptions of the environment, and the unneeded exercise of eminent domain in evaluating new pipeline construction.

49. Under this policy, the threshold requirement for applicants proposing new projects is that the applicant must be prepared to financially support the project without relying on subsidization from its existing customers. The next step is to determine whether the applicant has made efforts to eliminate or minimize any adverse effects the project might have on the applicant's existing customers, existing pipelines in the market and their captive customers, and landowners and communities affected by project facilities. If residual adverse effects on these interest groups are identified after efforts have been made to minimize them, the Commission will evaluate the project by balancing the evidence of public benefits to be achieved against the residual adverse effects. This is essentially an economic test. Only when the benefits outweigh the adverse effects on economic interests will the Commission proceed to complete the environmental analysis, where other interests are considered.

50. In applying the Certificate Policy Statement to this proceeding, the Commission explained in the Authorization Order that Rio Bravo executed a precedent agreement with RioGas Marketing, LLC for the full capacity of the pipeline for a 20-year term.¹²⁸ As the Commission has explained, a precedent agreement for 100% of a project's capacity is significant evidence of project need.¹²⁹ Under the Certificate Policy Statement, the Commission also considers the economic interests of affected landowners and surrounding communities.¹³⁰ The project was designed such that "[a]pproximately 66

¹²⁸ 169 FERC ¶ 61,131 at P 32.

¹²⁹ See, e.g., *Transcon. Gas Pipe Line Co., LLC*, 182 FERC ¶ 61,148, at P 20 (2023); *Columbia Gulf Transmission, LLC*, 180 FERC ¶ 61,206, at P 16 (2022) (explaining the Commission to give "precedent agreements for the transportation of gas destined for export the same weight in determining need that it gives to other precedent agreements for transportation" in interstate commerce and stating that "Congressional direction and intent, as expressed in section 3 and various trade agreements, would be thwarted if the Commission did not credit such precedent agreements as evidence of need").

¹³⁰ Certificate Policy Statement, 88 FERC ¶ 61,227 at 61,749 (explaining that under the Certificate Policy Statement, "[t]he balancing of interests and benefits that will

percent of the pipeline right-of-way would be collocated with or adjacent or parallel to existing pipeline, roadway, railway, or utility rights-of-way.”¹³¹ Based on the anticipated benefits from the project and the minimal adverse impacts, the Commission found that the project was consistent with the Certificate Policy Statement.¹³² None of the information analyzed and disclosed in the remand proceeding undermines this finding.

51. The Commission explained in the Authorization Order that, based on its application of the Certificate Policy Statement and its environmental review, the Commission concluded that the public convenience and necessity require approval and certification of Rio Bravo’s proposal under section 7 of the NGA.¹³³ None of the information analyzed and disclosed in our environmental analysis on remand undermines this conclusion. In the Remand Order, the Commission appropriately reaffirmed its conclusion that the Rio Bravo Pipeline Project, as amended, is required by the public convenience and necessity, as conditioned in the Authorization Order and as modified in the Remand Order.¹³⁴ The Commission’s balancing under the public convenience and necessity standard is consistent with the purpose of the NGA¹³⁵ and is therefore afforded deference.¹³⁶

precede the environmental analysis will largely focus on economic interests such as the property rights of landowners”); *see also id.* at 61,748 (discussing the scope of interests of landowners and surrounding communities considered under the Certificate Policy Statement).

¹³¹ Authorization Order, 169 FERC ¶ 61,131 at P 31.

¹³² *Id.* P 32.

¹³³ *Id.*

¹³⁴ Remand Order, 183 FERC ¶ 61,046 at P 208.

¹³⁵ *See NAACP v. Fed. Power Comm’n*, 425 U.S. 662, 669 (1976) (explaining that the Supreme Court “ha[s] consistently held that the use of the words ‘public interest’ in a regulatory statute is not a broad license to promote the general public welfare[,] [r]ather, the words take meaning from the purposes of the regulatory legislation”) (*NAACP v. FPC*); *id.* (explaining that the principal purpose of the NGA is to “encourage the orderly development of plentiful supplies of . . . natural gas at reasonable prices” and also observing that there are subsidiary purposes to the Act including “conservation, environmental, and antitrust questions”) (citation omitted).

¹³⁶ *See Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 844 (1984) (“a court may not substitute its own construction of a statutory provision for a reasonable interpretation made by the administrator of an agency.”) (*Chevron*); *Cf.*

52. For a proposal under NGA section 3 like the Rio Grande LNG Terminal, there is a presumption favoring authorization. The Authorization Order recognized that “an LNG proposal shall be authorized unless the proposal “will not be consistent with the public interest.”¹³⁷ That an NGA section 3 proposal “shall” be authorized unless it “will not be consistent with the public interest,”¹³⁸ “sets out a general presumption favoring such authorization[s].”¹³⁹ Although NGA section 3(e) authorizes the Commission “to approve or deny an application,”¹⁴⁰ courts have explained that to overcome the favorable presumption in NGA section 3(a) there must be an “affirmative showing of inconsistency with the public interest.”¹⁴¹ Moreover, NGA section 3(c) provides that the exportation of gas to FTA nations “shall be deemed to be consistent with the public interest.”¹⁴² In granting the NGA section 3 authorization, the Commission recognized that the Department of Energy, “pursuant to its authority under NGA section 3, has authorized Rio Grande to export up to 1,318 Bcf per year of domestically-produced natural gas (equal to approximately 26.1 MTPA of LNG) to free trade nations from the proposed Rio Grande LNG Terminal.”¹⁴³ In the Authorization Order, the Commission determined that

Myersville, 783 F.3d, at 1308 (“Because the grant or denial of a Section 7 certificate of public convenience and necessity is a matter ‘peculiarly within the discretion of the Commission,’ *Okla. Nat. Gas Co. v. Fed. Power Comm’n*, 257 F.2d 634, 639 (D.C. Cir. 1958), this court does not ‘substitute its judgment for that of the Commission,’ *Nat’l Comm. for the New River v. FERC*, 373 F.3d 1323, 1327 (D.C. Cir. 2004).”) (*Myersville*).

¹³⁷ Authorization Order, 169 FERC ¶ 61,131 at P 22 (citing 15 U.S.C. § 717b(a)).

¹³⁸ 15 U.S.C. § 717b(a).

¹³⁹ *Ctr. for Biological Diversity v. FERC*, 67 F.4th 1176, 1188 (D.C. Cir. 2023) (*Alaska LNG*); *EarthReports v. FERC*, 828 F.3d 949, 953 (D.C. Cir. 2016) (quoting *W. Va. Pub. Servs. Comm’n v. U.S. Dep’t of Energy*, 681 F.2d 847, 856 (D.C. Cir. 1982)); see also *Sierra Club v. U.S. Dep’t of Energy*, 867 F.3d 189, 203 (D.C. Cir. 2017).

¹⁴⁰ 15 U.S.C. § 717b(e).

¹⁴¹ *Sierra Club v. U.S. Dep’t of Energy*, 867 F.3d at 203 (quoting *Panhandle Producers & Royalty Owners Ass’n v. Econ. Regul. Admin.*, 822 F.2d 1105, 1111 (D.C. Cir. 1987)).

¹⁴² 15 U.S.C. § 717b(c).

¹⁴³ Authorization Order, 169 FERC ¶ 61,131 at P 22 (citing *Rio Grande LNG, LLC*, DOE/FE Docket No. 15-190-LNG, Order No. 3869 (2016)); see also Remand Order, 183 FERC ¶ 61,046 at P 5 n.11 (“In August 2016, Rio Grande received authorization from the Department of Energy, Office of Fossil Energy (DOE) to export the project's full capacity, which is equivalent to 1,318 billion cubic feet (Bcf) annually

the requested NGA section 3 authorization was not inconsistent with the public interest.¹⁴⁴ None of the information analyzed and disclosed in our environmental analysis on remand undermines this conclusion. In the Remand Order, the Commission appropriately reaffirmed its conclusion that the Rio Grande LNG Terminal is not inconsistent with the public interest, as conditioned in the Authorization Order and as modified in the Remand Order.¹⁴⁵ The Commission's balancing under the public convenience and necessity standard is consistent with the purpose of the NGA¹⁴⁶ and is therefore afforded deference.¹⁴⁷

(approximately 3.6 Bcf per day (Bcf/d)) equivalent of natural gas in the form of LNG to countries with which the United States has a Free Trade Agreement (FTA). *Rio Grande LNG, LLC*, DOE/FE Docket No. 15-190-LNG, Order No. 3869 (2016). Assuming a gas density of 0.7 kg/m³, 3.6 Bcf/d is 26.1 MTPA, which is roughly equivalent to the authorized 27 MTPA. On February 10, 2020, DOE issued an order authorizing Rio Grande to export LNG to non-FTA nations, but with which the U.S. still permits such trade. *Rio Grande LNG, LLC*, DOE/FE Docket No. 15-190-LNG, Order No. 4492 (2020).”).

¹⁴⁴ Remand Order, 183 FERC ¶ 61,046 at P 3 (“We reaffirm that the Rio Grande LNG Terminal is not inconsistent with the public interest under NGA section 3, and the Rio Bravo Pipeline Project, as amended, is required by the public convenience and necessity under NGA section 7, as conditioned in the Authorization Order and as modified herein.”).

¹⁴⁵ Remand Order, 183 FERC ¶ 61,046 at P 208.

¹⁴⁶ See *NAACP v. FPC*, 425 U.S. at 669 (explaining that the Supreme Court “ha[s] consistently held that the use of the words ‘public interest’ in a regulatory statute is not a broad license to promote the general public welfare[,] [r]ather, the words take meaning from the purposes of the regulatory legislation”); *id.* (explaining that the principal purpose of the NGA is to “encourage the orderly development of plentiful supplies of . . . natural gas at reasonable prices” and also observing that there are subsidiary purposes to the Act including “conservation, environmental, and antitrust questions”) (citation omitted).

¹⁴⁷ See *Chevron*, 467 U.S. at 844 (“a court may not substitute its own construction of a statutory provision for a reasonable interpretation made by the administrator of an agency.”); *Cf. Myersville*, 783 F.3d at 1308 (“Because the grant or denial of a Section 7 certificate of public convenience and necessity is a matter ‘peculiarly within the discretion of the Commission,’ *Okla. Natural Gas Co. v. Fed. Power Comm’n*, 257 F.2d 634, 639 (D.C. Cir. 1958), this court does not ‘substitute its judgment for that of the Commission,’ *Nat’l Comm. for the New River v. FERC*, 373 F.3d 1323, 1327 (D.C. Cir.

D. GHGs

53. Sierra Club argues that the Commission has the authority and obligation to consider GHG emissions as part of its public interest determination under the NGA, which, in Sierra Club's view, requires the Commission to consider the significance and impact of such GHG emissions under NEPA.¹⁴⁸ This argument is not properly before us on rehearing as it is outside the scope of the court's remand. With respect to GHGs, the court's remand was limited to the narrow question of "whether 40 C.F.R. § 1502.21(c) call[ed] for [the Commission] to apply the social cost of carbon protocol or some other analytical framework as 'generally accepted in the scientific community' within the meaning of the regulation, and if not, why not."¹⁴⁹ Regardless, this argument conflates the Commission's NGA and NEPA responsibilities, which are separate and distinct.¹⁵⁰ The Commission's balancing under the public interest standard¹⁵¹ is consistent with the purpose of the NGA¹⁵² and is therefore afforded deference.¹⁵³ As the D.C. Circuit has

2004).").

¹⁴⁸ Rehearing Request at 42.

¹⁴⁹ *Vecinos*, 6 F.4th at 1330.

¹⁵⁰ See *Commonwealth LNG, LLC*, 183 FERC ¶ 61,173 at P 37; *Transcon. Gas Pipe Line Co.*, 182 FERC ¶ 61,148, at P 101 (2023).

¹⁵¹ See Remand Order, 183 FERC ¶ 61,046 at P 208; see also *Alaska LNG*, 67 F.4th at 1188.

¹⁵² See *NAACP v. FPC*, 425 U.S. at 669 (explaining that the Supreme Court "ha[s] consistently held that the use of the words 'public interest' in a regulatory statute is not a broad license to promote the general public welfare[,] [r]ather, the words take meaning from the purposes of the regulatory legislation"); *id.* (explaining that the purpose of the NGA is to "encourage the orderly development of plentiful supplies of . . . natural gas at reasonable prices" and also observing that there are subsidiary purposes to the Act including "conservation, environmental, and antitrust questions") (citation omitted).

¹⁵³ See *Chevron*, 467 U.S. at 844 ("[A] court may not substitute its own construction of a statutory provision for a reasonable interpretation made by the administrator of an agency."); see also *Myersville*, 783 F.3d at 1308 ("Because the grant or denial of a Section 7 certificate of public convenience and necessity is a matter 'peculiarly within the discretion of the Commission,' *Okla. Natural Gas Co. v. Fed. Power Comm'n*, 257 F.2d 634, 639 (D.C. Cir. 1958), this court does not 'substitute its judgment for that of the Commission,' *Nat'l Comm. for the New River v. FERC*, 373 F.3d 1323, 1327 (D.C. Cir. 2004).").

explained, the NGA section 3 standard that a proposal “shall” be authorized unless it “will not be consistent with the public interest[.]”¹⁵⁴ “sets out a general presumption favoring such authorization[s].”¹⁵⁵ To overcome this favorable presumption and support denial of an NGA section 3 application, there must be an “affirmative showing of inconsistency with the public interest.”¹⁵⁶ The Commission explained that here the presumption was not overcome.¹⁵⁷ In conducting its public interest analysis under NGA section 3, the Commission is not required to characterize the project’s estimated GHG emissions as significant or insignificant; no court has held to the contrary. NEPA is not a means of “mandating that agencies achieve particular substantive environmental results”;¹⁵⁸ rather, it is a procedural statute that “prescribes the necessary process.”¹⁵⁹

54. Sierra Club next argues that the Commission erred by declining to use the social cost of carbon tool to determine whether the project’s estimated GHG emissions are

¹⁵⁴ 15 U.S.C. § 717b(a).

¹⁵⁵ *Alaska LNG*, 67 F.4th at 1188; *EarthReports v. FERC*, 828 F.3d at 953 (quoting *W. Va. Pub. Servs. Comm’n v. U.S. Dep’t. of Energy*, 681 F.2d 847, 856 (D.C. Cir. 1982)); see also *Sierra Club v. U.S. Dep’t of Energy*, 867 F.3d at 203.

¹⁵⁶ *Sierra Club v. U.S. Dep’t of Energy*, 867 F.3d at 203 (quoting *Panhandle Producers & Royalty Owners Ass’n v. Econ. Regul. Admin.*, 822 F.2d at 1111).

¹⁵⁷ See *Alaska LNG*, 67 F.4th at 1188 (“The NGA ‘sets out a general presumption favoring ... authorization.’ *W. Va. Pub. Servs. Comm’n*, 681 F.2d at 856. FERC’s approval of the Project easily comports with the NGA. The Commission expressly concluded the Project was in the public interest because it would have substantial economic and commercial benefits, and these benefits were not outweighed by the projected environmental impacts.”).

¹⁵⁸ *Marsh v. Or. Nat. Res. Council*, 490 U.S. 360, 371 (1989); accord *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989).

¹⁵⁹ *Oglala Sioux Tribe v. U.S. Nuclear Regulatory Comm’n*, 45 F.4th 291, 299 (D.C. Cir. 2022); see also *Methow Valley*, 490 U.S. at 351 (1989) (explaining that “it would not have violated NEPA if the Forest Service, after complying with [NEPA’s] procedural prerequisites, had decided that the benefits to be derived from downhill skiing at Sandy Butte justified the issuance of a special use permit, notwithstanding the loss of 15%, 50%, or even 100% of the mule deer herd” and also explaining that “[o]ther statutes may impose substantive environmental obligations on federal agencies, but NEPA merely prohibits uninformed—rather than unwise—agency action”).

significant for the purpose of NEPA.¹⁶⁰ Sierra Club also asserts that the Commission could use the Interim GHG Policy Statement to make a significance determination.¹⁶¹ The Interim GHG Policy Statement argument is outside the scope of the court's remand and the Interim GHG Policy Statement was converted to a draft by the Commission.

55. Moreover, Sierra Club argues that the Commission should follow CEQ's 2016 guidance,¹⁶² questions the Commission's conclusion that the social cost of GHGs is not appropriate for project-level review,¹⁶³ and asserts that because "FERC estimate[d] [the] social cost of greenhouse gases directly emitted as a result of the Rio Grande LNG and Rio Bravo projects at \$6.6 billion . . . these emissions are plainly not something that can be shrugged off" and must be "weigh[ed] in the public interest calculus."¹⁶⁴

56. First, we note that CEQ's 2016 guidance does not impose legal requirements on the Commission. Second, we disagree with Sierra Club's suggestion that the social cost of GHGs is appropriate for project level review. Third, we deny Sierra Club's claim that we must use SCC or some other method for measuring GHG impacts as part of our NGA merits review. Since we have already found that SCC has no utility in the NEPA determination of significance—and there is no other scientifically valid method enabling us to do so—we disagree with Sierra Club's claim that we are *obligated* to use SCC in the NGA review.

57. For informational purposes, Commission staff estimated the social cost of GHGs associated with reasonably foreseeable emissions from the project.¹⁶⁵ While we have recognized in some past orders that social cost of GHGs may have utility in certain contexts such as rulemakings,¹⁶⁶ we have also found that calculating the social cost of GHGs does not enable the Commission to determine credibly whether the reasonably foreseeable GHG emissions associated with a project are significant or not significant in

¹⁶⁰ Rehearing Request at 43-46.

¹⁶¹ *Id.* at 46-47 (citing *Consideration of Greenhouse Gas Emissions in Nat. Gas Infrastructure Project Revs.*, 178 FERC ¶ 61,108 (2022) (Interim GHG Policy Statement)).

¹⁶² *Id.* at 44-45.

¹⁶³ *Id.* at 45.

¹⁶⁴ *Id.*

¹⁶⁵ See Remand Order, 183 FERC ¶ 61,046 at PP 98-99.

¹⁶⁶ *Fla. Se. Connection, LLC*, 164 FERC ¶ 61,099 at PP 35-37.

terms of their impact on global climate change.¹⁶⁷ Currently, however, there are no criteria to identify what monetized values are significant for NEPA purposes, and we are currently unable to identify any such appropriate criteria.¹⁶⁸ Nor are we aware of any other currently scientifically accepted method that would enable the Commission to determine the significance of reasonably foreseeable GHG emissions.¹⁶⁹ The D.C. Circuit has repeatedly upheld the Commission's decisions not to use the social cost of carbon, including to assess significance.¹⁷⁰ In fact, the D.C. Circuit recently affirmed the

¹⁶⁷ See *Mountain Valley Pipeline, LLC*, 161 FERC ¶ 61,043, at P 296, (2017), *aff'd sub nom.*, *Appalachian Voices v. FERC*, 2019 WL 847199 (D.C. Cir. 2019); *Del. Riverkeeper v. FERC*, 45 F.4th 104, 111 (D.C. Cir. 2022). The social cost of GHGs tool merely converts GHG emissions estimates into a range of dollar-denominated figures; it does not, in itself, provide a mechanism or standard for judging "significance."

¹⁶⁸ *Tenn. Gas Pipeline Co., L.L.C.*, 181 FERC ¶ 61,051, at P 37 (2022); see also *Mountain Valley Pipeline, LLC*, 161 FERC ¶ 61,043 at P 296, *order on reh'g*, 163 FERC ¶ 61,197, at PP 275-297 (2018), *aff'd*, *Appalachian Voices v. FERC*, 2019 WL 847199, at 2 ("[The Commission] gave several reasons why it believed petitioners' preferred metric, the Social Cost of Carbon tool, is not an appropriate measure of project-level climate change impacts and their significance under NEPA or the Natural Gas Act. That is all that is required for NEPA purposes."); *EarthReports*, 828 F.3d at 949, 956 (D.C. Cir. 2016) (accepting the Commission's explanation why the social cost of carbon tool would not be appropriate or informative for project-specific review, including because "there are no established criteria identifying the monetized values that are to be considered significant for NEPA purposes"); *Tenn. Gas Pipeline Co., L.L.C.*, 180 FERC ¶ 61,205, at P 75 (2022); see, e.g., *LA Storage, LLC*, 182 FERC ¶ 61,026, at P 14 (2023); *Columbia Gulf Transmission, LLC*, 180 FERC ¶ 61,206 at P 91.

¹⁶⁹ See, e.g., *LA Storage, LLC*, 182 FERC ¶ 61,026, at P 14 (2023) ("there are currently no criteria to identify what monetized values are significant for NEPA purposes, and we are currently unable to identify any such appropriate criteria").

¹⁷⁰ See, e.g., *Alaska LNG*, 67 F.4th at 1184 (explaining that "the Commission compared the Project's direct emissions with existing Alaskan and nationwide emissions," "declined to apply the social cost of carbon for the same reasons it had given in a previous order"; describing those reasons as: (1) "the lack of consensus about how to apply the social cost of carbon on a long time horizon," (2) that "the social cost of carbon places a dollar value on carbon emissions but does not measure environmental impacts as such," and (3) "FERC has no established criteria for translating these dollar values into an assessment of environmental impacts"; and recognizing that the Commission's "approach was reasonable and mirrors analysis ... previously upheld" and that the Commission "had no obligation in this case to consider the social cost of carbon") (citations omitted); *EarthReports*, 848 F.3d, at 956 (upholding the Commission's

Commission's decision to not analyze the Social Cost of Carbon in its NEPA analysis,¹⁷¹ rejected the suggestion that it was required to do so, found that the petitioner's arguments "fare no better when framed as NGA challenges," and then, in the very same paragraph, sustained the Commission's public interest determination as "reasonable and lawful."¹⁷²

58. To the extent there are statements in the environmental documents and Remand Order that the projects' contributions to GHG emissions globally contribute incrementally to future climate change impacts,¹⁷³ we clarify that this is assuming that the transported gas is not displacing equal- or higher-emitting sources. As there currently are no accepted tools or methods for the Commission to use to determine significance, the Commission did not characterize these emissions as significant or insignificant,¹⁷⁴ nor do we do so on rehearing. Accordingly, we have taken the required "hard look" and have satisfied our obligations under NEPA.

59. Further, Sierra Club states that "FERC failed to address whether 40 C.F.R. § 1502.21 (formerly § 1502.22) required FERC to use methods generally accepted in the scientific community, including the social cost of carbon, to evaluate greenhouse gas emissions."¹⁷⁵ That is incorrect. The Commission directly addressed this argument.¹⁷⁶

decision not to use the social cost of carbon tool due to a lack of standardized criteria or methodologies, among other things); *Del. Riverkeeper v. FERC*, 45 F.4th 104 (also upholding the Commission's decision not to use the social cost of carbon); *Appalachian Voices v. FERC*, 2019 WL 847199 (same).

¹⁷¹ *Alaska LNG*, 67 F.4th at 1184 ("Rather than use the social cost of carbon, the Commission compared the Project's direct emissions with existing Alaskan and nationwide emissions. It declined to apply the social cost of carbon for the same reasons it had given in a previous order. . . FERC's approach was reasonable and mirrors analysis we have previously upheld.").

¹⁷² *Id.*

¹⁷³ *See, e.g.*, Remand Order, 183 FERC ¶ 61,046 at P 101; Amendment EA at 46 ("Construction and operation of the Project Amendment would increase the atmospheric concentration of GHGs in combination with past, current, and future emissions from all other sources globally and contribute incrementally to future climate change impacts.").

¹⁷⁴ *See id.*

¹⁷⁵ Rehearing Request at 8.

¹⁷⁶ Remand Order, 183 FERC ¶ 61,046 at PP 91-92. Moreover, it remains the case that there is a "lack of consensus about how to apply the social cost of carbon on a long time horizon," "the social cost of carbon places a dollar value on carbon emissions but

Specifically, we explained that “although we are including the social cost of GHG figures for informational purposes, we find that because the social cost of GHGs tool was not developed for project level review and . . . does not enable the Commission to credibly determine whether the GHG emissions are significant, section 1502.21 of the CEQ regulations does not require its use in this proceeding.”¹⁷⁷

60. Sierra Club also argues that the Commission cannot satisfy its obligations under NEPA and the NGA by comparing direct project emissions to the United States’ or Texas’ inventories.¹⁷⁸ This contention is also outside the scope of the issues considered on remand and is not properly before us on rehearing. Regardless, it is also substantively erroneous as the D.C. Circuit has explicitly held that the Commission acts reasonably by comparing a project’s emissions with nationwide and state inventories.¹⁷⁹

61. Finally, Sierra Club asserts that the Commission was required to consider whether to require the addition of CCS to the terminal as a way of mitigating GHG emissions.¹⁸⁰ We disagree. Not only is this argument outside the scope of the remand, but, as we explain above, the CCS System Amendment is a separate proposal that is under Commission review in a separate docket and has no bearing upon the issues considered in this order. Again, NEPA not only does not require agencies to discuss any particular mitigation plans that they might put in place, it does not require agencies—or third parties—to effect any.”¹⁸¹ Accordingly, we reject this argument.

does not measure environmental impacts as such,” and there is “no established criteria for translating these dollar values into an assessment of environmental impacts.” *Alaska LNG*, 67 F.4th at 1184.

¹⁷⁷ Remand Order, 183 FERC ¶ 61,046 at P 92.

¹⁷⁸ Rehearing Request at 34.

¹⁷⁹ See *Alaska LNG*, 67 F.4th at 1184 (“Rather than use the social cost of carbon, the Commission compared the Project’s direct emissions with existing Alaskan and nationwide emissions. . . . [The Commission’s] approach was reasonable and mirrors analysis we have previously upheld.”).

¹⁸⁰ Rehearing Request at 47-48.

¹⁸¹ *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 206 (D.C. Cir. 1991) (citing *Methow Valley*, 490 U.S. at 353 & n.16).

E. Rio Bravo Amendment Project

62. Sierra Club argues that the Commission erred by approving Rio Bravo's amendment application without supplementing its NEPA analysis to assess: (1) upstream GHG emissions; and (2) the Valley Crossing Pipeline alternative.¹⁸² We disagree.

63. Emissions upstream from the proposed project are not reasonably foreseeable. NEPA requires agencies to consider indirect effects or impacts only to the extent that they "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable."¹⁸³ The courts have found that an impact is reasonably foreseeable if it is "sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision."¹⁸⁴

64. The environmental effects resulting from natural gas production are generally neither caused by a proposed pipeline project nor are they reasonably foreseeable consequences of our approval of an infrastructure project, as contemplated by CEQ's regulations.¹⁸⁵ Although Sierra Club asserts that the gas will be produced in the Permian Basin and Eagle Ford Shale,¹⁸⁶ which together cut across a large section of Texas and New Mexico, the Commission has previously explained that record evidence indicating only the basin in which gas may be sourced is insufficient to provide the certainty required to make any resultant upstream emissions reasonably foreseeable for the purpose of NEPA.¹⁸⁷ That natural gas production and transportation facilities are all components

¹⁸² Rehearing Request at 48-55.

¹⁸³ 40 C.F.R. § 1508.1(g)(2) (2022); *see also Transcon. Gas Pipe Line Co.*, 182 FERC ¶ 61,148, at P 92 (2023).

¹⁸⁴ *See, e.g., EarthReports, Inc. v. FERC*, 828 F.3d 949, 955 (D.C. Cir. 2016) (citations omitted); *Sierra Club v. Marsh*, 976 F.2d 763, 767 (1st Cir. 1992).

¹⁸⁵ *E.g., Equitrans, L.P.*, 183 FERC ¶ 61,200, at P 42 (2023); *see, e.g., Transcon. Gas Pipe Line Co., LLC*, 182 FERC ¶ 61,148 at P 93; *Cent. N.Y. Oil & Gas Co., LLC*, 137 FERC ¶ 61,121, at PP 81-101 (2011), *order on reh'g*, 138 FERC ¶ 61,104, at PP 33-49 (2012), *petition for review dismissed sub nom. Coal. for Responsible Growth v. FERC*, 485 F. App'x. 472, 474-75 (2d Cir. 2012) (unpublished opinion); *see also Nat'l Fuel Gas Supply Corp.*, 164 FERC ¶ 61,084, at P 102 (2018); *Transcon. Gas Pipe Line Co.*, 182 FERC ¶ 61,148 at P 93 (collecting cases).

¹⁸⁶ Rehearing Request at 49.

¹⁸⁷ *Transcon. Gas Pipe Line Co.*, 182 FERC ¶ 61,148 at P 94 (finding that record evidence indicating that gas would be sourced from the Marcellus Shale was insufficient

of the general supply chain required to bring domestic natural gas to market does not mean that the Commission's approval of a particular infrastructure project will cause additional gas production.¹⁸⁸ Even knowing the identity of a producer of gas to be shipped on a pipeline and the general location of that producer's existing wells does not change that the number and location of any additional wells that might be induced would be a matter of speculation.¹⁸⁹ Therefore, we find that upstream GHG emissions are not reasonably foreseeable.

65. Under *Freeport*,¹⁹⁰ the Commission need not consider the effects of upstream production or downstream transportation, consumption, or combustion of exported gas because the Department of Energy's "independent decision to allow exports—a decision over which the Commission has no regulatory authority—breaks the NEPA causal chain and absolves the Commission of responsibility to include in its NEPA analysis considerations that it 'could not act on' and for which it cannot be 'the legally relevant cause.'"¹⁹¹ Here, because any upstream emissions would be related to volumes of natural gas for export, the Commission is not responsible for the analysis of these potential impacts.

66. The environmental assessment examined three alternatives for the Amendment Project (Amendment Project EA), including a system alternative using the Valley Crossing Pipeline.¹⁹² As noted above, 40 C.F.R. § 1502.9(d) sets forth when a supplemental EIS is required.¹⁹³ As explained above, none of the circumstances listed under that regulation have occurred. Sierra Club's submission does not demonstrate that

to render any resulting upstream emissions reasonably foreseeable).

¹⁸⁸ *Nat'l Fuel Gas Supply Corp.*, 158 FERC ¶ 61,145 at P 157 (2017), *order on reh'g*, 164 FERC ¶ 61,084 (2018).

¹⁸⁹ *Id.* P 163.

¹⁹⁰ *Sierra Club v. FERC*, 827 F.3d 36 (D.C. Cir. 2016) (*Freeport*).

¹⁹¹ *Id.* at 48 (quoting *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 769 (2004)); *see also Alaska LNG*, 67 F.4th at 1185 ("FERC's lack of jurisdiction over export approval ... means it has 'no NEPA obligation stemming from th[e] effects' of export-bound gas.") (quoting *Sierra Club v. FERC*, 867 F.3d 1357, 1372 (D.C. Cir. 2017)).

¹⁹² Amendment Project EA at 48-49.

¹⁹³ *See* 40 C.F.R. § 1502.9(d) ("Agencies shall prepare supplements ... if ... there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts").

there are “significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.”¹⁹⁴ Nor does the amendment represent “substantial changes to the proposed action that are relevant to environmental concerns.”¹⁹⁵ Therefore, a supplemental EIS is not required.

67. We continue to find that the Valley Crossing Pipeline Alternative is not a feasible alternative to the Amendment Project. We preface our discussion by noting that where, as here, a federal agency is not the sponsor of a project, “the Federal government’s consideration of alternatives may accord substantial weight to the preferences of the applicant and/or sponsor in the siting and design of the project.”¹⁹⁶ Moreover, courts have upheld federal agencies’ use of applicants’ project purpose and need in environmental documents and as the basis for evaluating alternatives.¹⁹⁷ When an agency is asked to consider a specific proposal, the needs and goals of the parties involved in the application should be taken into account.¹⁹⁸ Further, because the alternatives considered under NEPA are informed both by “the project sponsor’s goals,”¹⁹⁹ as well as “the goals that Congress has set for the agency,”²⁰⁰ *i.e.*, the goals set in enacting the NGA, the Commission’s consideration of alternatives includes the no-action alternative and alternatives that achieve the purpose of the project. As noted in the Amendment Project EA, the purpose of the Rio Bravo Amendment Project is “to provide flexibility and

¹⁹⁴ *Id.* § 1502.9(d)(ii).

¹⁹⁵ *Id.* § 1502.9(d)(i).

¹⁹⁶ *City of Grapevine, Tex. v. Dep’t of Transp.*, 17 F.3d 1502, 1506 (D.C. Cir. 1994) (quoting *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 197 (D.C. Cir. 1991) (*Citizens Against Burlington*)).

¹⁹⁷ *E.g.*, *City of Grapevine v. U.S. Dep’t of Transp.*, 17 F.3d at 1506; *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d at 199 (explaining that the evaluation of alternatives is “shaped by the application at issue and by the function that the agency plays in the decisional process.”).

¹⁹⁸ *Citizens Against Burlington*, 938 F.2d at 196.

¹⁹⁹ *Id.* at 196.

²⁰⁰ *Sierra Club v. U.S. Forest Serv.*, 897 F.3d 582, 598-99 (4th Cir. 2018) (finding the statement of purpose and need for a Commission-jurisdictional natural gas pipeline project that explained where the gas must come from, where it will go, and how much the project would deliver, allowed for a sufficiently wide range of alternatives but was narrow enough that there were not an infinite number of alternatives).

efficiency in satisfying the requirements of the natural gas shipper supplying natural gas to the Rio Grande LNG Terminal.”²⁰¹

68. Sierra Club states that the Valley Crossing Pipeline is a viable system alternative to the Rio Bravo’s pipeline system, arguing that both pipelines originate in the Agua Dulce hub and pass directly through the Rio Grande LNG Terminal site, and that Rio Grande plans to receive commissioning gas from the Valley Crossing Pipeline.²⁰² Sierra Club asserts that there is sufficient unused capacity in the Valley Crossing Pipeline to replace one of Rio Bravo’s approved pipelines.²⁰³ Sierra Club contends, without supporting evidence, that due to existing shippers’ low use of contracted capacity on the Valley Crossing Pipeline, they may be willing to relinquish their contracts.²⁰⁴

69. The Commission adequately considered and rejected the Valley Crossing Pipeline Alternative because, as recognized in the Remand Order, the Valley Crossing Pipeline is fully subscribed by end users in Mexico and cannot provide Rio Bravo’s required capacity on a firm basis.²⁰⁵ Additionally, as explained in the Remand Order, the Rio Bravo Pipeline is an approved dual pipeline system, and the Amendment Project is limited in scope and only involves a 6-inch diameter increase for Pipeline 1, and a 0.2-mile extension and operating pressure change for Pipeline 1 and Pipeline 2.²⁰⁶ The Valley Crossing Pipeline is fully subscribed by end users in Mexico and cannot provide Rio Bravo’s required capacity on a firm basis.²⁰⁷

²⁰¹ Amendment Project EA at 2; Remand Order, 183 FERC ¶ 61,046 at P 70.

²⁰² Rehearing Request at 52.

²⁰³ *Id.* at 55.

²⁰⁴ *Id.*

²⁰⁵ Remand Order, 183 FERC ¶ 61,046 at P 72.

²⁰⁶ *Id.* P 72; Amendment Project EA at 49.

²⁰⁷ See Amendment Project EA at 49 (“As explained in our April 2019 FEIS for the Rio Grande LNG and Rio Bravo Pipeline projects, the Valley Crossing Pipeline’s volume is fully subscribed by end users in Mexico; this remains accurate. Any transportation service that could be obtained for the Project Amendment from the Valley Crossing Pipeline would be on an interruptible basis only. As such, the Valley Crossing Pipeline cannot provide the entire required capacity or a portion of this capacity on a firm basis. Therefore, we do not consider the Valley Crossing Pipeline to be a viable system alternative to the Project Amendment, and we did not analyze it further”).

70. Sierra Club notes that the Valley Crossing Pipeline had a planned expansion to accommodate capacity for the Annova LNG Brownsville Project (Annova Project).²⁰⁸ Due to the cancellation of the Annova Project, Sierra Club argues that there could still be available capacity on or a planned expansion to the Valley Crossing Pipeline resulting in available new capacity.²⁰⁹ Sierra Club states that the Commission must require Rio Bravo to ask Valley Crossing Pipeline, LLC, which shares the common parent company, Enbridge, whether it plans to expand the Valley Crossing Pipeline.²¹⁰

71. We find that Sierra Club provides no evidence to demonstrate that, given the cancellation of the Annova Project, there has been any expansion of the Valley Crossing Pipeline resulting in available firm capacity. Thus, as explained in the Remand Order and the Amendment Project EA, any transportation service that could be obtained on the Valley Crossing Pipeline to supply the Rio Grande LNG Terminal would be on an interruptible basis.²¹¹ Additionally, there is no evidence that Valley Crossing Pipeline, LLC, an entity not subject to our jurisdiction,²¹² is either willing or able to modify its facilities in a way that would create enough additional firm capacity to eliminate the need for Rio Bravo's Pipeline 2. Therefore, we continue to find that the Valley Crossing Pipeline is not a feasible alternative to the Amendment Project.²¹³

72. The Remand Order explained that the Commission "does not independently design systems for pipeline companies; rather, the Commission ensures that any proposed project it approves is or will be required by the public convenience and necessity."²¹⁴ Under NEPA, the "rule of reason governs both which alternatives the agency must

²⁰⁸ Rehearing Request at 52.

²⁰⁹ *Id.* at 52-53.

²¹⁰ *Id.* at 54.

²¹¹ Remand Order, 183 FERC ¶ 61,046 at P 72; Amendment Project EA at 49.

²¹² We also do not accept Sierra Club's position, as we understand it, that Rio Bravo was obligated under the Commission's *Guidance Manual for Environmental Report Preparations* to develop new business arrangements or to pursue an alternate project related to the Valley Crossing Pipeline. Rehearing Request at 53-54 (citing Office of Energy Projects, *Guidance Manual for Environmental Report Preparation* at 4-136 (Feb. 2017)). That guidance does not suggest such a requirement.

²¹³ Remand Order, 183 FERC ¶ 61,046 at P 72; Amendment Project EA at 49.

²¹⁴ *Id.* P 73.

discuss, and the extent to which it must discuss them.”²¹⁵ Sierra Club proposes a fundamentally different configuration that will result in less operational flexibility. We conclude that Sierra Club’s proposed alternative is disproportionate to the scale of the contemplated federal action and is inconsistent with NEPA’s rule of reason.²¹⁶

F. SpaceX

73. Sierra Club raises several arguments pertaining to SpaceX’s launch operations, none of which are persuasive, and all of which are outside the scope of the remand.²¹⁷ Sierra Club first argues that the Commission should have supplemented its NEPA analysis to evaluate the potential for cascading impacts from future failed SpaceX launches of the Starship Super Heavy rocket, including impacts caused by particulate matter and vibrations.²¹⁸ It next contends that the Commission should evaluate the cumulative impacts of SpaceX’s launches and the operation of the projects on environmental justice communities.²¹⁹ Finally, Sierra Club asserts that the Commission should reconsider whether it is in the public interest to site an LNG facility in proximity to SpaceX’s operations.²²⁰

74. The Commission made clear in the Remand Order that the remand was limited to two issues—whether the social cost of GHG or similar protocol should be used and the scope of the Commission’s environmental justice analysis—and that it would not consider issues outside the scope of the court’s mandate.²²¹ The arguments regarding SpaceX are, therefore, not properly raised in this rehearing proceeding and are rejected.

²¹⁵ *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 195 (D.C. Cir. 1991) (citations & internal quotation marks omitted).

²¹⁶ *See, e.g., Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 767 (2004) (“[I]nherent in NEPA and its implementing regulations is a ‘rule of reason.’”) (citation omitted); *Mayo v. Reynolds*, 875 F.3d 11, 20 (D.C. Cir. 2017) (“The rule of reason governs [a court’s] review of an agency’s environmental analysis.”) (citation omitted).

²¹⁷ *See* Rehearing Request at 55-61.

²¹⁸ *Id.* at 60.

²¹⁹ *Id.* at 60-61.

²²⁰ *Id.* at 61.

²²¹ Remand Order, 183 FERC ¶ 61,046 at P 85.

75. Moreover, as acknowledged by Sierra Club in its rehearing request,²²² the Authorization Order contains two conditions that require Rio Grande to develop and implement procedures to monitor and mitigate adverse impacts from SpaceX launches, including a requirement to reference any Federal Aviation Administration (FAA) launch guidance issued to the public.²²³ These conditions are generally applicable and thus apply to the Starship Super Heavy rocket with which Sierra Club expresses concern. The conditions also impose ongoing compliance requirements for the duration of the authorization. Sierra Club asserts that these conditions are not sufficiently protective,²²⁴ yet offers no support for this claim, nor does it explain why such generally applicable conditions would not adequately address adverse impacts from future Starship Super Heavy rocket launches. Assertions that are unsupported by evidence or explanation fall short of the specificity required on rehearing.²²⁵ Accordingly, we reject these arguments as outside the scope of the issues before us on rehearing.

²²² See Rehearing Request at 60.

²²³ See Authorization Order, 169 FERC ¶ 61,130 at app., envtl. condition 46 (“Prior to initial site preparation, Rio Grande shall develop and implement procedures to monitor rocket launch activity and to position onsite construction crews and plant personnel in areas that are unlikely to be impacted by rocket debris of a failed launch during initial moments of rocket launch activity from the Brownsville SpaceX facility. Rio Grande’s procedures for positioning of onsite construction crews and plant personnel shall include reference to any guidance from the FAA to the public regarding anticipated SpaceX launches.”); *id.* app., envtl. condition 131 (“Prior to introduction of hazardous fluids, Rio Grande shall develop and implement procedures for plant personnel to monitor the rocket launches from the Brownsville SpaceX facility and take mitigative actions before and after a rocket launch failure to minimize the potential of release reaching offsite areas or resulting in cascading effects that could extend offsite or impact safe operations.”).

²²⁴ Rehearing Request at 60.

²²⁵ See, e.g., *ZEP Grand Prairie Wind, LLC*, 183 FERC ¶ 61,150, at P 10 (2023) (rejecting argument on rehearing for lack of specificity where the petitioner “offer[ed] only [a] conclusory assertion in support of its position”); *Turlock Irrigation Dist.*, 140 FERC ¶ 61,207, at P 27 (2012) (finding an argument that was “nothing more than a bald assertion” as being waived for lack of specificity). Although these cases interpret the rehearing provision of the Federal Power Act, see 16 U.S.C. § 825l(a), the rehearing provisions of the NGA and FPA are “substantially identical” and “to be interpreted consistently with each other.” *Granholm ex rel. Mich. Dept. of Nat. Res. v. FERC*, 180 F.3d 278, 280 n.2 (D.C. Cir. 1999).

76. In any event, the Commission was not required to conduct supplementary NEPA procedures to address the SpaceX information raised by Sierra Club on rehearing. As stated above, an agency is not required to prepare a supplemental EIS every time new information comes to light, but rather only when the circumstances under 40 C.F.R. § 1502.9(d) occur. The information in question here does not meet that standard, particularly given that the Commission previously considered the potential for future SpaceX launches and included environmental conditions in the authorization that are specifically tailored to such launches.²²⁶ We find that there are no “significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.”²²⁷

The Commission orders:

In response to Sierra Club’s rehearing request, the Remand Order is hereby modified and the result sustained, as discussed in the body of this order.

By the Commission. Chairman Phillips is concurring with a separate statement attached.
Commissioner Danly is concurring in the result with a separate statement to be issued at a later date.
Commissioner Clements is dissenting with a separate statement attached.
Commissioner Christie is concurring with a separate statement attached.

(S E A L)

Debbie-Anne A. Reese,
Deputy Secretary.

²²⁶ See *Marsh*, 490 U.S. at 373-74 (holding that an agency need not supplement an EIS every time new information comes to light because doing so “would render agency decisionmaking intractable, always awaiting updated information only to find the new information outdated by the time a decision is made”).

²²⁷ 40 C.F.R. § 1502.9(d)(1)(ii).

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Rio Grande LNG, LLC
Rio Bravo Pipeline Company, LLC

Docket Nos. CP16-454-006
CP16-455-003
CP20-481-001

(Issued October 27, 2023)

PHILLIPS, Chairman, *concurring*:

1. I write separately to underscore three points. First, I am pleased that we are finally issuing these rehearing orders. Our action today will only strengthen the legal durability of the authorizations we issued following the decision from the U.S. Court of Appeals for the D.C. Circuit in *Vecinos para el Bienestar de la Comunidad Costera v. FERC*.¹
2. Second, I recognize that Commissioner Danly is “concurring in the result” of this order. In my earlier statement in *Mankato Energy Center, LLC*, I outlined my view on this issue.² I stand by that position.
3. Third, in my earlier statement in *Rio Grande LNG, LLC*, I explained that the Commission satisfied the court’s directions in *Vecinos* both by conducting a full environmental justice examination using our current methods, which are consistent with EPA and CEQ guidance, and by taking an unprecedented and bipartisan step to protect environmental justice communities from potential concerns about the projects’ effects on air quality.³ I want to reaffirm that the Commission went beyond the requirements of the remand and that we are making progress on the critically important issue of environmental justice.

For these reasons, I respectfully concur.

Willie L. Phillips
Chairman

¹ 6 F.4th 1321 (2021).

² 184 FERC ¶ 61,170 (Phillips, Comm’r, concurring) (2023).

³ *Rio Grande LNG, LLC*, 183 FERC ¶ 61,046 (Phillips, Comm’r, concurring) (2023).

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Rio Grande LNG, LLC
Rio Bravo Pipeline Company, LLC

Docket Nos. CP16-454-006
CP16-455-003
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(Issued Oct. 27, 2023)

CLEMENTS, Commissioner, *dissenting*:

1. I dissent from today's Order¹ for the same reasons I dissented from the Remand Order.² In addition, and perhaps most fundamentally, I dissent because the Order flouts the D.C. Circuit court's directive in *Vecinos* to (1) explain whether the Council on Environmental Quality's (CEQ) regulation, 40 C.F.R. § 1502.21(c), required the Commission to use the Social Cost of Carbon (SCC) protocol to assess greenhouse gas (GHG) emissions; and (2) revisit the Commission's Natural Gas Act (NGA) public interest determinations after addressing the deficiencies the court identified in the Commission's analysis of environmental justice (EJ) and climate change impacts.³

2. In particular, I agree with the rehearing petitioners⁴ (collectively, Sierra Club) that the Commission was obligated to (1) prepare a supplemental environmental impact statement (EIS) for Rio Grande LNG, LLC's (Rio Grande) proposed liquefied natural gas terminal project (Rio Grande LNG Terminal) and Rio Bravo Pipeline Company, LLC's (Rio Bravo) proposed pipeline project (Rio Bravo Pipeline Project) (jointly the Projects), and (2) provide a meaningful opportunity for public comment on the supplemental EIS, including mitigation measures. The Commission's failure to do so has left us with a fundamentally flawed record that cannot support a public interest determination for either project. Moreover, I disagree with the Order's conclusion that it is impossible for the Commission to determine the significance of the environmental impacts of the Projects'

¹ *Rio Grande LNG, LLC*, 185 FERC ¶ 61,080 (2023) (Order).

² See *Rio Grande LNG, LLC*, 183 FERC ¶ 61,046 (2023) (Remand Order) (Clements, Comm'r, dissenting).

³ See *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321, 1329, 1331 (D.C. Cir. 2021) (*Vecinos*).

⁴ On May 22, 2023, *Vecinos para el Bienestar de la Comunidad Costera*, Sierra Club, City of Port Isabel, and the Carrizo/Comecrudo Tribe of Texas filed a joint request for rehearing of the Remand Order (Rehearing Request).

GHG emissions.⁵ The Commission's continued failure to grapple with the significance issue puts our orders in jeopardy upon judicial review, particularly this one. Finally, I object to language in the Order making it unclear—apparently deliberately—whether the Commission considered GHG emissions at all in its NGA public interest determinations, as it was legally required to do.⁶ For these reasons, I would grant rehearing and find that the Rio Bravo Pipeline application, as amended,⁷ is not in the public convenience and necessity and that the Rio Grande LNG Terminal is inconsistent with the public interest.

3. Following the D.C. Circuit court's remand of the Commission's original authorization orders in *Vecinos*, the Commission conducted new analyses of the Projects' impacts on EJ communities, including air quality and visual impacts. Instead of issuing a supplemental EIS fully explaining these analyses and taking public comment on it, the Commission instead merely summarized the results in its Remand Order. This was an unlawful procedural shortcut that left the Commission with a fatally deficient administrative record.

4. Under CEQ's regulations implementing the National Environmental Policy Act (NEPA),⁸ which the Commission's own NEPA regulations compel us to follow,⁹ a supplemental EIS is required when "there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."¹⁰ In my dissent from the Remand Order, I explained that the Commission's new analysis identifying *hundreds* of additional potentially affected EJ communities by itself constituted "significant new information" requiring a supplemental EIS.¹¹ This new information painted a "*seriously* different picture of the environmental landscape," which

⁵ See Order, 185 FERC ¶ 61,080 at PP 57-58.

⁶ See *id.* P 53.

⁷ Given my conclusion that the Rio Bravo Pipeline project in its entirety cannot be found to be in the public convenience and necessity, by extension the proposed changes to the project cannot be found to be in the public convenience and necessity. The Commission should have prepared a supplemental EIS addressing the Rio Bravo Pipeline and the proposed revisions to the project together.

⁸ 42 U.S.C. §§ 4321-4370j (2021).

⁹ See 18 C.F.R. § 380.1 (2022).

¹⁰ 40 C.F.R. § 1502.9(d)(1)(ii) (2022).

¹¹ Remand Order, 183 FERC ¶ 61,046 (Clements, Comm'r, dissenting at P 3).

necessitated a supplemental EIS under relevant case law.¹² Moreover, the Commission found that the Rio Grande LNG Terminal may cause significant air quality impacts and would cause significant visual impacts on EJ communities and their individual members.¹³ This was another, independent reason that a supplemental EIS was required.¹⁴

5. The impacts identified in the Commission's new analyses are particularly important because they would fall on EJ communities, which "experience disproportionate and adverse human health or environmental burdens."¹⁵ Members of these communities suffer from poorer health outcomes and have lower life expectancies than those in other communities.¹⁶ The causes of this include inequitable access to clean water, clean air, natural places, and resources for other basic human health and environmental needs.¹⁷ The cumulative effects of exposure to the disproportionate burdens placed on EJ communities, taken together with the adverse impacts identified in the Commission's new analyses, will further disadvantage these communities. By failing to fully assess these impacts in a supplemental EIS reflecting input from affected EJ communities, the Commission contributes to a longstanding problem of "gaps in

¹² See *Stand Up for Cal.! v. Dep't of the Interior*, 994 F.3d 616, 629 (D.C. Cir. 2021) (emphasis in original) (quoting *Friends of Capital Crescent Trail v. FTA*, 877 F.3d 1051, 1060 (D.C. Cir. 2017)) (internal quotation marks omitted).

¹³ See Remand Order, 183 FERC ¶ 61,046 at PP 141 (describing potential NAAQS violations from simultaneous construction, commissioning, start-up, and operations), 147 ("individuals from environmental justice communities fishing or otherwise recreating near the terminal may experience adverse air quality impacts"), and 163 (finding cumulative adverse visual impacts on individuals from EJ communities would be significant). In contrast, the 2019 EIS found that "the Rio Grande LNG Project is not expected to contribute to cumulative disproportionate, adverse effects on minority and low-income residents in the area." EIS at 4-469. The air quality cumulative impacts section concluded that air pollutant emissions "would not be expected to result in a long-term impact on regional air quality" and said nothing about significant adverse effects on EJ communities or their individual members. See *id.* at 4-478.

¹⁴ See Remand Order, 183 FERC ¶ 61,046 (Clements, Comm'r, dissenting at P 4).

¹⁵ Exec. Order No. 14096, 88 Fed. Reg. 25251, 25252 (Apr. 21, 2023).

¹⁶ *Id.*

¹⁷ *Id.*

environmental and human health data ... [that act as] a persistent and pernicious driver of environmental injustice.”¹⁸

6. The Remand Order asserts that the Rio Grande LNG Terminal would not have a significant impact on air quality—and that no supplemental EIS therefore is required—based on the unsupported assumption that the air monitoring and mitigation plan required by new Environmental Condition 144 would prevent the combined construction, commissioning, start-up, and operational emissions from causing an exceedance of the pertinent National Ambient Air Quality Standards (NAAQS).¹⁹ While the courts have generally held that mitigation measures can be used to justify a finding of no significant impact (FONSI), an agency “must explain *exactly* how the measures will mitigate the project’s impact.”²⁰ Although the agency is not required to have a complete mitigation plan for a “mitigated FONSI,” the measures must be “developed to a reasonable degree.”²¹ Moreover, the agency must demonstrate the feasibility of the mitigation measures, rather than relying on cursory descriptions of them.²²

7. Environmental Condition 144 falls far short of these standards. Indeed, the condition is nothing more than “a plan to have a plan,” as Sierra Club aptly put it.²³ The condition does not say how many or what type of monitors Rio Grande must have, how a NAAQS exceedance would be calculated, what mitigation measures Rio Grande must implement in response to a NAAQS exceedance or how quickly it must do so, or whether or how Rio Grande must share the results of its monitoring and analysis with federal and

¹⁸ *Id.*

¹⁹ Remand Order, 183 FERC ¶ 61,046 at PP 142-143.

²⁰ *LaFlamme v. FERC*, 852 F.2d 389, 399 (9th Cir. 1988) (emphasis added) (citing *Steamboaters v. FERC*, 759 F.2d 1382, 1394 (9th Cir. 1985); *Jones v. Gordon*, 792 F.2d 821, 829 (9th Cir. 1986)).

²¹ *National Parks & Conservation Association v. Babbitt*, 241 F.3d 722, 734 (9th Cir. 2001) (citations omitted); see also CEQ, *Final Guidance for Federal Departments and Agencies on the Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact*, 76 Fed. Reg. 3843, 3848 (Jan. 21, 2011) (CEQ Mitigation Guidance) (mitigation measures should be “clearly described” and “carefully specified in terms of measurable performance standards or expected results”).

²² See *O’Reilly v. U.S. Army Corps of Engineers*, 477 F.3d 225, 234 (5th Cir. 2007).

²³ Rehearing Request at 31.

state air quality regulators or the public.²⁴ Worst of all, there is no explanation of whether it will even be feasible for Rio Grande to prevent a NAAQS exceedance. For these reasons, the Commission cannot rely on Environmental Condition 144 to support its FONSI and therefore must prepare a supplemental EIS fully assessing significant air quality and other impacts, as well as mitigation measures to prevent or minimize those impacts.²⁵

8. The unfortunate fact is that the Commission cannot demonstrate that the air quality and visual impacts identified in the Remand Order are the only significant impacts EJ communities will suffer from the Projects. The reason is simple: the Commission did not effectively elicit the public comment that is foundational to a complete environmental review. As I explained in my dissent from the Remand Order, members of the hundreds of newly identified EJ communities have no way of knowing they are within the Projects' potential impact zone, let alone knowledge of whether and how they might provide information to the Commission on what those specific impacts would be or how to mitigate them.²⁶ The Commission's failure to give the public opportunity to comment on the new analyses in the Remand Order or on the "mitigated FONSI" included in that order appears to contravene CEQ's guidance.²⁷ Although the Commission did provide an

²⁴ Environmental Condition 144 does require Rio Grande to file weekly reports with the Commission about exceedances. Remand Order, 183 FERC ¶ 61,046 at app. A, P 144(c). The Commission cannot reasonably assume that air quality regulators or members of the public would monitor the docket for this information without some form of affirmative notice from Rio Grande or the Commission.

²⁵ The cases cited in the Order at P 38 are readily distinguishable. None address the requirements for a mitigated FONSI. *See Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989); *Sierra Club v. FERC*, 38 F.4th 220, 233 (D.C. Cir. 2022); *Mayo v. Reynolds*, 875 F.3d 11, 15-16 (D.C. Cir. 2017); *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 206 (D.C. Cir. 1991). And none approved a cursory plan to develop unspecified mitigation measures in the future.

²⁶ Remand Order, 183 FERC ¶ 61,046 (Clements, Comm'r, dissenting at P 7).

²⁷ *See* CEQ Mitigation Guidance, 76 Fed. Reg. 3848 (explaining CEQ's regulations provide for public involvement in the development of a mitigated FONSI document) (citations omitted). In defending the Commission's approach, the Order states that the Commission "is generally master of its own calendar and procedures." Order, 185 FERC ¶ 61,080 at P 38. Although that may be generally true, the Commission's regulations provide that it will comply with CEQ's NEPA regulations (18 C.F.R. § 380.1), and CEQ interprets its regulations to require specific procedures for a mitigated FONSI. None of the cases that the Order cites address public involvement with respect to

opportunity for comment on the project sponsors' responses to certain of Commission staff's highly technical environmental information requests, there was no opportunity to comment on critical air modeling information used in the Commission's cumulative air impacts analysis because that information was submitted *after* the public comment period closed.²⁸ The Order misses the mark in claiming that "any person may file comments on the docket."²⁹ The ability to file comments in the docket is meaningless, where, as here, potentially impacted communities have no actual notice of their ability to file. To assure meaningful public participation, the Commission should have had an affirmative outreach program for potentially affected communities that included notifications in both English and Spanish.³⁰

9. I also dissent with respect to the Order's claim that the Commission is incapable of determining the significance of GHG emissions associated with the Projects. The Order's insistence that there are no acceptable tools for determining the significance of GHG emissions remains unsupported, and gains nothing through reflexive repetition in virtually every recent Commission order issued under sections 3 and 7 of the NGA.

10. In my recent concurrence in *Transco*, I explained the history of the language in Paragraphs 57 and 58 of the Order,³¹ which has come to be known as the "*Driftwood* compromise."³² In *Driftwood*, the majority adopted unheralded new language declaring

a mitigated FONSI. *See* Order, 185 FERC ¶ 61,080 at P 38 n.105.

²⁸ *See* Remand Order, 183 FERC ¶ 61,046 (Clements, Comm'r, dissenting at P 11).

²⁹ Order, 185 FERC ¶ 61,080 at P 44.

³⁰ Despite the Projects' documented impact on majority Hispanic/Latino communities with limited English proficiency, the Commission declined to provide any materials in Spanish. *See* Remand Order, 183 FERC ¶ 61,046 at PP 111, 119. In Cameron County, 70 percent of residents speak Spanish at home and 33.5 percent of the Spanish speaking population speaks English less than very well. In Port Isabel, the city closest to the LNG terminal, a majority of residents speaks Spanish at home and 27.1 percent speak English less than well. *See* Rehearing Request at 39. While Rio Grande did translate materials regarding the project and provided Spanish-speaking representatives at the public scoping and comments meeting, the Commission failed to do so. *See* Remand Order, 183 FERC ¶ 61,046 at n.195; P 85.

³¹ *See Transcon. Gas Pipe Line Co.*, 184 FERC ¶ 61,066 (2023) (Clements, Comm'r, concurring at PP 2-3) (*Transco* concurrence).

³² *See id.* (Phillips, Chairman, and Christie, Comm'r, concurring at P 1).

that there are no methods for assessing the significance of GHG emissions, and particularly criticized the SCC protocol.³³ I have dissented from this language in *Driftwood* and subsequent orders for two reasons: (1) it reflects a final Commission decision that it cannot determine the significance of GHG emissions, despite the fact the Commission has never responded to comments in the GHG Policy Statement docket³⁴ addressing methods for doing so; and (2) the language departs from previous Commission precedent without reasoned explanation, thereby violating the Administrative Procedure Act.³⁵ I dissent from the language in paragraphs 57 and 58 of the Order for the same reasons.

11. More fundamentally, I dissent from the Order's discussion of GHGs because it fails to satisfy the court's direction in *Vecinos* to explain whether 40 C.F.R. § 1502.21(c) calls for the Commission to use the SCC protocol or some other analytical framework to assess GHGs and "if not, why not."³⁶ Rather than providing a reasoned analysis of CEQ's regulation, the Order merely repeats the Commission's superficial arguments against use of the SCC protocol.³⁷ In analyzing whether CEQ's regulation calls for use of

³³ See *Driftwood Pipeline LLC*, 183 FERC ¶ 61,049, at PP 61, 63 (2023) (*Driftwood*).

³⁴ Docket No. PL21-3.

³⁵ See *Driftwood*, 183 FERC ¶ 61,049 (Clements, Comm'r, dissenting at PP 2-3); see also *Port Arthur LNG Phase II, LLC*, 184 FERC ¶ 61,184 (2023) (Clements, Comm'r, dissenting in part at PP 2-3); *Venture Global Calcasieu Pass, LLC*, 184 FERC ¶ 61,185 (2023) (Clements, Comm'r, dissenting in part at PP 2-4); *Northern Natural Gas Company*, 184 FERC ¶ 61,186 (2023) (Clements, Comm'r, dissenting in part at PP 2-3); *Texas Eastern Transmission, LP*, 184 FERC ¶ 61,187 (2023) (Clements, Comm'r, dissenting in part at PP 2-4); *Equitrans, L.P.*, 183 FERC ¶ 61,200 (2023) (Clements, Comm'r dissenting at PP 2-3); *Commonwealth LNG, LLC*, 183 FERC ¶ 61,173 (2023) (Clements, Comm'r, dissenting at PP 5-8); Remand Order, 183 FERC ¶ 61,046 (2023) (Clements, Comm'r, dissenting at PP 14-15); *Texas LNG Brownsville LLC*, 183 FERC ¶ 61,047 (2023) (Clements, Comm'r, dissenting at PP 14-15).

³⁶ *Vecinos*, 6 F.4th at 1330. Given the requirement under the Administrative Procedure Act that agencies provide a reasoned explanation for their decisions, *Env'tl. Def. Fund v. FERC*, 2 F.4th 953, 968 (D.C. Cir. 2021), I understand that is what the court has asked the Commission to provide on remand. The Order is long on pronouncements, but woefully short on *reasoning*.

³⁷ Order, 185 FERC ¶ 61,080 at PP 56-59. To be sure, some courts have upheld the Commission's determination not to use the SCC protocol. See *id.* at P 56 & n.170. But the court in *Vecinos* distinguished some of those cases because they did not address

the SCC protocol, the obvious central question is what CEQ's own position is on the protocol's usefulness in NEPA analyses. The Commission needn't look far to discover that CEQ unambiguously supports use of the SCC protocol in NEPA reviews. CEQ's 2016 GHG Guidance identifies the SCC protocol as a "harmonized, interagency metric that can give decision makers and the public useful information for their NEPA review."³⁸ CEQ's new GHG guidance issued in 2023 similarly recommends using the protocol in NEPA reviews, making no distinction between project-level analyses and agency rulemakings.³⁹ The Order simply misses the point in stating CEQ's 2016 guidance "does not impose legal requirements on the Commission."⁴⁰ The question posed on remand is whether CEQ's regulation should be interpreted to call for use of the SCC protocol in assessing GHG emissions. Based on CEQ's 2016 and 2023 guidance documents, the answer is "yes."

12. I further object to language in paragraph 53 of the Order making unclear whether the Commission considered GHG emissions at all in its public interest determinations. Sierra Club asserts that the Commission has the authority and obligation to consider GHG emissions as part of its public interest determination under the NGA, including their significance and environmental impact.⁴¹ As discussed below, the Order's response to this argument is deliberately vague and nearly unintelligible. Worse, the Order fails to provide a reasoned explanation of whether or how it "revisit[ed] its determinations of public interest and convenience under Sections 3 and 7 of the NGA,"⁴² as the *Vecinos* court directed it to do. Rather than explaining whether and how the Commission factored its post-remand EJ and GHG analyses into its public interest determinations, the Order seems to suggest that environmental considerations may not be part of the Commission's

the CEQ regulation at issue here. *Vecinos*, 6 F.4th at 1329. The Sierra Club makes this very point, but the Order omits any mention of it, disregarding both the *Vecinos* decision and an important argument raised on rehearing. *See* Rehearing Request at 49.

³⁸ Council on Env't'l Quality, Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews at 33 n.86 (Aug. 1, 2016), https://ceq.doe.gov/docs/ceq-regulations-and-guidance/nepa_final_ghg_guidance.pdf.

³⁹ *See* Council on Env't'l Quality, National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change, 88 Fed. Reg. 1196 (Jan. 9, 2023).

⁴⁰ Order, 185 FERC ¶ 61,080 at P 56.

⁴¹ Rehearing Request at 42.

⁴² *Vecinos*, 6 F.4th at 1331.

substantive public interest determination *at all*. It will likely come as quite a surprise to the court that the Commission may be using this order on rehearing to question decades of court and Commission precedents, as well as the Commission's own 1999 Certificate Policy Statement, finding that environmental considerations are an integral part of the Commission's public interest determinations under the NGA.

13. In response to the Sierra Club, the Order says the Rehearing Request “conflates the Commission's NGA and NEPA responsibilities, which are separate and distinct. The Commission's balancing under the public interest standard is consistent with the purpose of the NGA and is therefore afforded deference.”⁴³ The Order then cites the Supreme Court's decision in *NAACP v. Fed. Power Comm'n*,⁴⁴ and includes a parenthetical explaining that the Court said “the purpose of the NGA as [sic] to ‘encourage the orderly development of plentiful supplies of . . . natural gas at reasonable prices’ and also observing that there are subsidiary purposes to the Act including ‘conservation, environmental, and antitrust questions.’” This leaves ambiguous whether the Commission's public interest determination focuses exclusively on “encouraging the development of natural gas supplies” or also encompasses environmental considerations, including the impacts of GHG emissions.

14. The Commission used nearly identical language in its order in *Commonwealth LNG*,⁴⁵ prompting me to dissent.⁴⁶ If the Rorschach test could be translated into words, it might read like paragraph 53 of the Order. The Order's language is a verbal inkblot, with no fixed meaning. Its ambiguity leaves each of its authors free to say—outside the pesky confines of the Commission's actual order—*either* that the Commission does or does not consider GHG impacts in its public interest determinations. The Order appears to be deliberately propagating this ambiguity considering that (1) I criticized the vagueness of the language in my dissent in *Commonwealth LNG*, and (2) there is no other reason to include the language here because, according to the Order, Sierra Club's “argument is not properly before us on rehearing as it is outside the scope of the court's remand.”⁴⁷

15. As I explained in my dissent in *Commonwealth LNG*, a reviewing court cannot discern from the inkblot language whether the Commission finds that it must consider

⁴³ Order, 185 FERC ¶ 61,080 at P 53.

⁴⁴ 425 U.S. 662, 669 (1976).

⁴⁵ See *Commonwealth LNG, LLC*, 183 FERC ¶ 61,173, at P 37 (2023) (*Commonwealth LNG*).

⁴⁶ *Id.* (Clements, Comm'r, dissenting, at PP 2-4).

⁴⁷ Order, 185 FERC ¶ 61,080 at P 53.

climate impacts and, if so, whether and how it weighs them in its public interest determinations.⁴⁸ In failing to explain its reasoning, the Commission violates the most basic requirement of the Administrative Procedure Act.⁴⁹ Additionally, in this case, it flouts the *Vecinos* court's direction to revisit the Commission's public interest determinations under the NGA after correcting the deficiencies in the Commission's original EJ and GHG analyses.

16. To the extent the language in paragraph 53 of the Order is meant to suggest the Commission is not required to consider the environmental impacts of the project's GHG emissions in its public interest determinations under sections 3 and 7 of the NGA, it is plainly wrong and contravenes the Commission's 1999 Certificate Policy Statement,⁵⁰ as well as decades of court and Commission precedents. The Commission's 1999 Certificate Policy Statement states that, in making its public interest determination under the NGA, "the Commission's goal is to appropriately consider the enhancement of competitive transportation alternatives, the possibility of overbuilding, *the avoidance of unnecessary disruption of the environment*, and the unneeded exercise of eminent domain."⁵¹ The policy provides for the Commission to weigh project benefits against adverse consequences, including adverse environmental impacts.⁵² The Commission has clarified that, under this policy, it may deny a certificate under section 7 of the NGA if a proposed project's environmental harms outweigh its benefits.⁵³

⁴⁸ *Commonwealth LNG*, 183 FERC ¶ 61,173 (Clements, Comm'r, dissenting, at P 2).

⁴⁹ See, e.g., *SEC v. Chenery Corp.*, 318 U.S. 80, 94 (1943) ("[T]he orderly functioning of the process of review requires that the grounds upon which the administrative agency acted be clearly disclosed and adequately sustained."); *Del. Riverkeeper Network v. FERC*, 753 F.3d 1304, 1313 (D.C. Cir. 2014) (quoting *Motor Vehicle Mfrs. Ass'n of the U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983)) ("[A]n agency action will be set aside as arbitrary and capricious if it is not the product of 'reasoned decisionmaking.'").

⁵⁰ *Certification of New Interstate Natural Gas Pipeline Facilities*, 88 FERC ¶ 61,227 (1999), *clarified*, 90 FERC ¶ 61,128, *further clarified*, 92 FERC ¶ 61,094 (2000) (1999 Certificate Policy Statement).

⁵¹ *Id.*, 88 FERC ¶ 61,227 at 2 (emphasis added).

⁵² See *id.* at 18.

⁵³ Order Clarifying Statement of Policy, 90 FERC ¶ 61,128 at 17 ("[T]here may be cases in which service on an existing pipeline is an alternative to construction and the cumulative adverse impacts on an existing pipeline and its customers as well as on

17. The courts have consistently agreed that the Natural Gas Act public interest standard encompasses environmental considerations. More than sixty years ago, the Supreme Court held that our predecessor agency, the Federal Power Commission, properly factored air pollution impacts into its public interest determination under section 7 of the NGA.⁵⁴ Nearly fifty years ago, in *NAACP*, the Supreme Court held that environmental protection is one purpose of the NGA.⁵⁵ Over twenty years ago, courts continued to recognize that the NGA public interest determination involves weighing “market support, economic, operational, and competitive benefits, and environmental impact[s].”⁵⁶ Finally, many recent decisions—including the D.C. Circuit’s remand decision in *this* case—make clear that the Commission must consider the climate impacts of GHG emissions in its public interest determinations under the statute.⁵⁷ If the

landowners and the environment are significant enough that the balance would tip against certification.”).

⁵⁴ *Fed. Power Comm’n v. Transcon. Gas Pipe Line Corp.*, 365 U.S. 1, 5 (1961).

⁵⁵ 425 U.S. at 669; *Id.* at 670 n.6.

⁵⁶ *See, e.g., South Coast Air Quality Mgmt. Dist. v. FERC*, 621 F.3d 1085, 1099 (9th Cir. 2000).

⁵⁷ *See Vecinos*, 6 F.4th at 1329, 1331 (finding Commission’s analysis of climate change impacts deficient under *both* the NGA and NEPA and directing Commission to revisit its public interest determination after correcting deficiencies); *see also Cntr. for Biological Diversity v. FERC*, 67 F.4th 1176, 1188 (D.C. Cir. 2023) (holding that the Commission makes an appropriate NGA public interest determination when it finds that a project has “substantial economic and commercial benefits” that are “not outweighed by the projected environmental impacts”); *Birckhead v. FERC*, 925 F.3d 510, 519 (D.C. Cir. 2019) (in addressing arguments relating to GHG emissions, the court explains that the Commission’s public interest determination includes environmental considerations); *Sierra Club v. FERC*, 867 F.3d 1357, 1373 (D.C. Cir. 2017) (in addressing Commission’s treatment of GHG emissions, the court explains that the balancing of factors in determining the public convenience and necessity includes environmental effects); *Sierra Club v. FERC*, 827 F.3d 36, 42 (D.C. Cir. 2016) (“As required by the Natural Gas Act and NEPA, the Commission undertook an extensive review of the Freeport Projects.”); *Food & Water Watch v. FERC*, 28 F.4th 277, 282 (D.C. Cir. 2022) (“The Section 7 certificate process incorporates review of proposed projects under the National Environmental Policy Act (NEPA).” The court also noted that the NEPA review requires an analysis of downstream GHG emissions.); *City of Oberlin, Ohio v. FERC*, 937 F.3d 599, 602 (D.C. Cir. 2019) (holding that “[a]s part of the Section 7 certifying process... the Commission must complete an environmental review of the proposed project under the National Environmental Policy Act.”) (emphasis added); *Minisink Residents for Env’t*

Commission now intends to say that climate impacts (or any other environmental considerations) are no longer part of its public interest determination under the NGA, it must say so unambiguously and give a reasoned explanation for that conclusion.⁵⁸

18. NEPA also requires the Commission to consider climate and other environmental impacts in deciding whether to approve a project application. As the Supreme Court has explained, NEPA's environmental impact statement requirement "ensures that the agency, *in reaching its decision*, will have available, and will carefully *consider*, detailed information concerning significant environmental impacts...."⁵⁹ The Order's statement that the Commission's responsibilities under the NGA are "separate and distinct" from those under NEPA could be interpreted to suggest the statutes bear no relation to each other.⁶⁰ To the contrary, the Commission's obligations under the two statutes are inextricably linked. NEPA directs federal agencies "to the fullest extent possible" to interpret and administer their organic statutes in accordance with the environmental protection objectives set forth in NEPA.⁶¹ In requiring the Commission to consider environmental impacts in its substantive decision-making, NEPA gives content to the NGA's broad "public interest" standard.⁶²

Pres. & Safety v. FERC, 762 F.3d 97, 106–11 (D.C. Cir. 2014) (stating that FERC is obligated to consider alternatives to a proposed project that might better serve the public interest, including on the basis of their environmental impact, when issuing a certificate under Section 7); *Delaware Riverkeeper Network v. FERC*, 45 F.4th 104, 115 (D.C. Cir. 2022) ("[T]he Commission's balancing of public benefits and adverse consequences [in issuing a certificate] reasonably accounted for potential environmental impacts.").

⁵⁸ "[T]he requirement that an agency provide reasoned explanation for its action [under the Administrative Procedure Act] would ordinarily demand that it display awareness that it *is* changing position." *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502 (2009).

⁵⁹ *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989) (emphasis added).

⁶⁰ See Order, 185 FERC ¶ 61,080 at P 53.

⁶¹ 42 U.S.C. § 4332; see also 42 U.S.C. § 4331 (setting forth NEPA's environmental protection objectives).

⁶² Cf. *Village of Barrington v. Surface Transp. Bd.*, 636 F.3d 650, 665-66 (D.C. Cir. 2011) (upholding agency's interpretation of "public interest" in its organic statute to include environmental considerations given NEPA's language and goals).

19. The best that can be said of the Order’s attempt to divorce NEPA compliance from the Commission’s substantive decision-making under the NGA is that it badly misconstrues both statutes. But the Order’s misguided language is even more indefensible here than it was in *Commonwealth LNG*. The *Vecinos* court ordered the Commission to “reconsider its determinations of public interest and convenience under Sections 3 and 7 of the NGA, along with its NEPA analyses of the projects’ impacts on climate change and environmental justice communities.”⁶³ By failing to clearly explain how, *or even if*, the Commission factored its post-remand environmental analyses into its NGA public interest determinations, the Commission failed to respond to the court’s directive. Of the many serious errors in this deeply flawed Order, that may be the greatest.

For the foregoing reasons, I respectfully dissent.

Allison Clements
Commissioner

⁶³ 6 F.4th at 1331.

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Rio Grande LNG, LLC Rio Bravo Pipeline Company, LLC	Docket Nos.	CP16-454-006 CP16-455-003 CP20-481-001
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(Issued October 27, 2023)

CHRISTIE, Commissioner, *concurring*:

1. While today's order correctly rejects Sierra Club's insistence that the Commission incorporate the "social cost of GHG" constructed numbers associated with the project into its public interest calculus under the NGA,¹ I would have preferred that the order reject this unsupportable claim more comprehensively. I write separately to emphasize the following points.
2. On remand, the court directed us either to use social cost of GHG, or some other "scientifically accepted" measurement, or to explain why we are declining to do so.² The order correctly notes that, as the Commission has explained previously, the social cost of GHG construct is *not* useful for evaluating project-level emissions.³ But this barely scratches the surface of the problems with using this construct in our certificate proceedings.
3. To begin with, a social cost of GHG calculation does not have the slightest scientific validity in any serious cost-benefit analysis of a natural gas infrastructure project, for a slew of reasons. As just one example, the social cost of GHG number is supposed to represent what economists call "negative externalities." The typical social cost of GHG calculation, however, does not even bother to calculate a project's *positive* externalities and net them out, so the social cost of GHG number is utterly useless for its

¹ Order at PP 53 – 61.

² *Vecinos Para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321, 1329-30 (D.C. Cir. 2021) (*Vecinos*) ("On remand, the Commission must explain whether 40 C.F.R. § 1502.21(c) calls for it to apply the social cost of carbon protocol or some other analytical framework, as 'generally accepted in the scientific community' within the meaning of the regulation, and if not, why not.").

³ Order at PP 56 – 59.

supposed purpose in weighing costs and benefits. Used as the project opponents want us to use it, the social cost of GHG calculation is pure pseudoscience.⁴

4. The best that can be said about a social cost of GHG number in this context is that it is meaningless. Using such a meaningless number to attempt to gauge the global climate impact of a single project, would be literally an exercise of “garbage in, garbage out.” Fortunately, the order makes clear both that the social cost of GHG calculation is not useful for ascertaining the global climate impacts of a single infrastructure project and that there is no other known method that would be scientifically valid for such purpose.⁵ This Commission simply cannot make such a determination, and *no court has ever told us we must attempt the impossible*.

5. And let’s get real: The entire push, dating back to the failed attempt last year to enact the draft Certificate Policy and GHG Statements, has always had one overriding goal — a goal that is fully apparent from the insistence of the current CEQ and EPA that this Commission consider *both upstream and downstream non-jurisdictional* activities before approving any natural gas project.⁶ That goal is to put in place a process and legal foundation for this Commission to *reject* needed natural gas projects solely on the basis of a single project’s purported impacts on the global climate.⁷ But as I said in my dissent

⁴ One of the best definitions of “pseudoscience” is from the renowned 20th century philosopher Karl Popper, who said that, unlike true science, which seeks facts first before reaching logical conclusions, pseudoscience starts with preconceived conclusions and then selects (*viz.* “cherry picks”) facts to fit its preconceived conclusions. *See, e.g.*, “Drawing the line between science and pseudo-science.” Sternwedel, Janet D., *Scientific American Blog*, Oct. 4, 2011, <https://blogs.scientificamerican.com/doing-good-science/drawing-the-line-between-science-and-pseudo-science/>.

⁵ Order at P 57. This is what has been called the “*Driftwood* language.” It is worth observing that determining whether a proposed project is in the public convenience and necessity is not a question for the “scientific community”; it is a question for this Commission, acting pursuant to its lawful authority and in accordance with its good judgment.

⁶ It is also flatly contrary to law. *See, e.g., Sierra Club v. FERC*, 827 F.3d 36, 47 (D.C. Cir. 2016) (*Freeport*) (“[W]here, as here, an agency ‘has no ability to prevent a certain effect due to’ that agency’s ‘limited statutory authority over the relevant action,’ then that action ‘cannot be considered a legally relevant “cause” of the effect’ for NEPA purposes.”) (quoting *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 771 (*Public Citizen*)) (cleaned up).

⁷ *See Certification of New Interstate Natural Gas Facilities*, 178 FERC ¶ 61,107 (2022) (Christie, Comm’r, dissenting at P 49 & n.97) (Christie Dissent) (identifying that the goal of many well-funded groups is to stymie development of natural gas

to the GHG Policy Statement, that would represent a radical rewrite of the Natural Gas Act (NGA), which neither this Commission nor the D. C. Circuit, nor any other appellate court, has the authority to do.⁸ Global climate change is far beyond this Commission's legal authority to regulate under the NGA. Clearly global climate change and what to do about it from a regulatory standpoint are major questions of public policy — which, as the Supreme Court has recently reminded us, are the exclusive province of the legislature.⁹

6. Finally, in response to Sierra Club's insistence that we also analyze the *upstream* GHG emissions caused by the project, today's order correctly reiterates that such upstream GHG emissions are not reasonably foreseeable.¹⁰ It is true, as the order says, that the record evidence does not support drawing the conclusion that upstream emissions are either caused by, or a natural consequence of, certificating this project.¹¹ I would add, however, that, unlike with downstream emissions, the Commission has no legal obligation to estimate emissions from upstream, non-jurisdictional activities anyway, so this finding fulfills no legal obligation, and amounts to a "finding" of no legal consequence.¹² Further, the Commission has no legal authority whatsoever to order

infrastructure), <https://www.ferc.gov/news-events/news/items-c-1-and-c-2-commissioner-christies-dissent-certificate-policy-and-interim>; see also Rich Glick and Matthew Christiansen, *FERC and Climate Change*, 40 ENERGY L.J. 1 (May 2019) ("Where climate change factors explicitly into the Commission's decision-making process, such as with respect to infrastructure permitting, the Commission *must thoroughly examine how its decision can affect the climate* in order to ensure that it is consistent with the public interest. In these instances, the Commission cannot bury its head in the sand and ignore the climate change consequences of its decisions. . . . [The Commission] *must consider an infrastructure project's implications for climate change* when evaluating whether that project is consistent with the public interest. The urgent threat posed by climate change demands nothing less.") (emphases added).

⁸ See Christie Dissent at PP 11-21.

⁹ See, e.g., *West Virginia v. EPA*, 597 U.S. ---, 142 S. Ct. 2587 (2022); *Biden v. Nebraska*, 600 U.S. ---, 143 S.Ct. 2355 (2023); see also, Christie Dissent at PP 22-40.

¹⁰ Order at PP 63 – 65.

¹¹ *Id.* PP 64 – 65.

¹² The order correctly describes the limited "reasonably foreseeable" analysis under NGA section 3. *Id.* P 65. Although courts have told us to examine downstream emissions for NGA section 7 projects transporting natural gas in interstate commerce, they have not done so for NGA section 3 projects providing LNG for export. Compare *Sierra Club v. FERC*, 867 F.3d 1357 (D.C. Cir. 2017) (*Sabal Trail*) with *Freeport*, 827

mitigation of such non-jurisdictional upstream activities, much less to consider such non-jurisdictional upstream emissions in our merits review under the NGA.

7. To summarize, the order is sufficient as far as it goes to rebut Sierra Club's claims and to answer the D. C. Circuit's remand instructions, so I concur. The order does not go far enough, however, to make it absolutely clear that the NGA gives this Commission no legal authority to reject a natural gas project based on its purported impact on global climate,¹³ regardless of whether that purported impact is packaged as a "social cost of GHG" number or in some other wrapper. Only Congress can decide the appropriate policy response to climate change and make amendments to the NGA. This Commission has no such legislative authority.

For these reasons, I respectfully concur.

F.3d 36. As I have previously observed, I believe the *Sabal Trail* court got it wrong. Christie Dissent at PP 42-48. I am in good company in questioning *Sabal Trail*. See *Ctr. For Biological Diversity v. U.S. Army Corp of Eng'rs*, 941 F.3d 1288, 1300 (11th Cir. 2019) ("[T]he legal analysis in *Sabal Trail* is questionable at best. It fails to take seriously the rule of reason announced in *Public Citizen* or to account for the untenable consequences of its decision. The *Sabal Trail* court narrowly focused on the reasonable foreseeability of the downstream effects, as understood colloquially, while breezing past other statutory limits and precedents — such as *Metropolitan [Edison Co. v. People Against Nuclear Energy]*, 460 U.S. 776 (1983),] and *Public Citizen* — clarifying what effects are cognizable under NEPA.").

¹³ Nor does this Commission have the authority under the NGA to reject a project based on its impacts on "environmental justice" or other communities as a result of the public-interest review under the NGA. See *NAACP v. Fed. Power Comm'n*, 425 U.S. 662, 669 (1976) (explaining that the Supreme Court "ha[s] consistently held that the use of the words 'public interest' in a regulatory statute is not a broad license to promote the general public welfare[,] [r]ather, the words take meaning from the purposes of the regulatory legislation"); *id.* (explaining that the purpose of the NGA is to "encourage the orderly development of plentiful supplies of . . . natural gas at reasonable prices" and also observing that there are subsidiary purposes to the Act) (citation omitted). While impacts on such communities should be fully and carefully considered and the mitigation of such impacts should be a focus of attention in the NEPA process, along with the mitigation of other environmental impacts, they are not the legal basis for a rejection under the NGA.

Mark C. Christie
Commissioner



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TX 75202-2733

March 17, 2015

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First St, NE, Room 1A
Washington, D.C. 20426

Dear Ms. Bose:

Thank you for the opportunity to review and comment on the Draft Resource Reports for the Rio Grande LNG, LLC and Rio Bravo Pipeline Company, Docket No. PF15-20-000. We would like to offer the following comments.

We are unsure how FERC anticipates meeting NEPA requirements, however, we recommend that an environmental impact statement (EIS) be prepared rather than an environmental assessment, as the potential environmental impacts of the proposed project certainly appear to be significant.

Rio Grande LNG may not have considered all reasonable alternatives. For example, it appears that potential alternatives may exist at Port Mansfield, Texas, and on the Corpus Christi Inner Harbor. These potential alternatives do not appear to have been considered. Further, in the event that one or more of the other LNGs proposed to be located on the Brownsville Ship Channel do not proceed towards permitting, Gulf Coast LNG in particular, we would hope that Rio Grande LNG would consider these as additional alternatives. In addition, it appears that Rio Bravo Pipeline Company may not have considered all reasonable alternatives. There may be opportunities to avoid pipeline crossing impacts to aquatic resources, which may not have been considered. We recommend that FERC consider these potential alternatives in the draft EIS.

It is our observation that the proposed project site is part of a unique coastal ecosystem, with relatively low environmental impacts to date. Based on the information provided, we estimate the proposed project will directly impact 516.5 acres of aquatic habitats, including estuarine emergent marsh, estuarine scrub-shrub (mangrove) marsh, palustrine emergent marsh, unvegetated tidal flats, estuarine open water, palustrine forested wetland, palustrine scrub shrub wetland, and streams. The proposed LNG facility would apparently impact 249.5 acres of this, including estuarine emergent marsh, estuarine scrub-shrub (mangrove) marsh, palustrine emergent marsh, unvegetated tidal flats, and estuarine open water. The proposed pipelines would impact 267 acres of wetlands and 2725 ft of stream habitat. Aquatic habitats that would be impacted by the pipeline crossings include palustrine forested wetlands, shrub scrub wetlands,



Appendix 9.B: Construction and Operation Emissions Analysis Reports and Calculations

SLOW SPEED DIESEL without reliquefaction

Emission Factors

	Assumptions	21.7 hours
<p>UNG Center speed at rated power = 25.9 Kts</p> <p>UNG vessel lift from Table 2.9 Kts Report for the speed desired, marine gas oil 0.1% sulfur. Not a factor from Westrail for 50DP and American Shipping Bureau 90% fuel oil 0.1% sulfur.</p> <p>0.8% fuel oil 0.1% MGO used in generator set engine for heating</p> <p>Tier boat emission factor based on Car 2 Engine, Tier 0, Table 3-8 Kts Report, SO2 factor corrected to 300 ppm for 0.8% fuel</p> <p>21.2 Kts Report, NOx adjustment factor for all use in ECA for 20.5 for marine engines</p> <p>0.1 Estimated effect of Tiered fuel lift requirement on sulfur content after June 1, 2007 (90% reduction).</p> <p>While heating, assume Cox engine uses no MGO, propulsion engines shutdown.</p>		<p>21.7 hours</p> <p>UNG vessel lift from Table 2.9 Kts Report for the speed desired, marine gas oil 0.1% sulfur. Not a factor from Westrail for 50DP and American Shipping Bureau 90% fuel oil 0.1% sulfur.</p> <p>0.8% fuel oil 0.1% MGO used in generator set engine for heating</p> <p>Tier boat emission factor based on Car 2 Engine, Tier 0, Table 3-8 Kts Report, SO2 factor corrected to 300 ppm for 0.8% fuel</p> <p>21.2 Kts Report, NOx adjustment factor for all use in ECA for 20.5 for marine engines</p> <p>0.1 Estimated effect of Tiered fuel lift requirement on sulfur content after June 1, 2007 (90% reduction).</p> <p>While heating, assume Cox engine uses no MGO, propulsion engines shutdown.</p>

13 DFDE LNG carrier

VOC	Activity Emissions (lb)										Annual Emissions (tpy)									
	PM10		PM2.5		SO2		CH4		N2O		CO		VOC		PM10		PM2.5		SO2	
	PM10	PM2.5	SO2	CH4	N2O	CO	NOK	CO	VOC	PM10	PM2.5	SO2	CH4	N2O	CO	SO2	CH4	N2O		
1	21	7	6	13	0	1	20707	74.6	7.7	3.3	1.0	0.9	0.2	0.0	0.2	3230	16.1	0.0	0.0	0.2
2	21	3	3	6	0	1	10533	37.3	3.8	1.6	0.5	0.5	1.0	0.0	0.1	1615	8.0	0.0	0.0	0.1
3	28	10	9	19	0	2	31960	111.9	11.5	4.9	1.6	1.4	3.0	0.0	0.3	4845	24.5	0.0	0.0	0.3
4	32	27	24	51	1	1	82928	298.5	30.7	13.2	4.2	3.7	7.9	0.1	1.2971	1615	8.0	0.0	0.0	1.2971
5	34	3	3	6	0	1	10533	37.3	3.8	1.6	0.5	0.5	1.0	0.0	0.1	1615	8.0	0.0	0.0	0.1
6	11	7	6	13	0	2	20707	74.6	7.7	3.3	1.0	0.9	0.2	0.0	0.2	3230	16.1	0.0	0.0	0.2
7	21	7	6	13	0	2	31960	111.9	11.5	4.9	1.6	1.4	3.0	0.0	0.3	4845	24.5	0.0	0.0	0.3
8	32	10	9	19	0	2	81666	248.8	24.8	7.9	3.2	3.5	7.2	0.0	0.6	0.1	4925	24.5	0.0	0.1
9	23	33	33	60	0	1	15484	46.2	3.9	1.8	0.5	0.5	0.3	0.1	0.1	2415	10.0	0.0	0.0	0.1
10	11	16	16	30	0	0.3	3.7	0.8	28885	85.3	7.1	3.2	4.2	0.0	0.6	0.1	4459	7.1	0.0	0.1
11	30	30	30	50	0.3	2.1	0.5	15881	47.4	2.0	0.9	1.8	2.6	0.6	0.3	0.1	2477	2.0	0.0	0.3
12	17	17	17	31	0.1	2.1	0.5	15881	47.4	2.0	0.9	1.8	2.6	0.6	0.3	0.1	2477	2.0	0.0	0.3
13	6	8	8	8	0.1	1	7940	23.7	3.0	0.9	1.3	1.3	0.0	0.2	0.0	1239	3.0	0.0	0.0	0.2
14	929	134	134	12	16.7	3.7	123237	382.7	31.9	14.5	20.6	20.0	0.0	0.0	0.0	26	0.6	0.0	0.0	0.6
15	0	0	0	1	0	0	1259	0.1	0	0.2	0.1	0.1	0.0	0.0	0.0	193	0.0	0.0	0.0	0.0
16	1	0	0	0	1	0	1259	4.5	0.5	0.2	0.1	0.1	0.0	0.0	0.0	193	0.0	0.0	0.0	0.0
17	2.5	0.8	0.7	1.5	0.0	0.1	24679	8.9	0.9	0.4	0.1	0.1	0.0	0.0	0.0	386.6	0.0	0.0	0.0	0.0
18	2	1	1	1	0	0	1858	6.7	0.7	0.3	0.1	0.1	0.0	0.0	0.0	290	0.0	0.0	0.0	0.0
19	2	1	1	1	0	0	1858	6.7	0.7	0.3	0.1	0.1	0.0	0.0	0.0	290	0.0	0.0	0.0	0.0
20	3/8	1.2	1.1	2.3	0.0	0.2	37361	13.4	1.4	0.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	248	183	172	344	1.8	8	273881	929	8.8	3.4	39	28	28	14	3	1	4593	57.8	1.0	1

	CO2	CO2e
N2O		
0.3	16,151	16,242
0.3	8,919	9,022
0.6	25,070	25,272
0.3	6,461	6,566
0.3	11,086	11,212
0.0	387	397
0.0	580	587
0.7	18,513	18,766
1.3	43,583	44,035

**Technical Support Document: -
Social Cost of Carbon for Regulatory Impact Analysis -
Under Executive Order 12866 -**

Interagency Working Group on Social Cost of Carbon, United States Government

With participation by

Council of Economic Advisers
Council on Environmental Quality
Department of Agriculture
Department of Commerce
Department of Energy
Department of Transportation
Environmental Protection Agency
National Economic Council
Office of Energy and Climate Change
Office of Management and Budget
Office of Science and Technology Policy
Department of the Treasury

February 2010

from the more optimistic (e.g. abundant low-cost, low-carbon energy) to more pessimistic (e.g. constraints on the availability of nuclear and renewables).¹⁵ Second, the socio-economic trajectories associated with a 550 ppm CO₂e concentration scenario are not derived from an assessment of what policy is optimal from a benefit-cost standpoint. Rather, it is indicative of one possible future outcome. The emission trajectories underlying some BAU scenarios (e.g. MESSAGE's 612 ppm) also are consistent with some modest policy action to address climate change.¹⁶ We chose not to include socio-economic trajectories that achieve even lower GHG concentrations at this time, given the difficulty many models had in converging to meet these targets.

For comparison purposes, the Energy Information Agency in its 2009 Annual Energy Outlook projected that global carbon dioxide emissions will grow to 30.8, 35.6, and 40.4 gigatons in 2010, 2020, and 2030, respectively, while world GDP is projected to be \$51.8, \$71.0 and \$93.9 trillion (in 2005 dollars using market exchange rates) in 2010, 2020, and 2030, respectively. These projections are consistent with one or more EMF-22 scenarios. Likewise, the United Nations' 2008 Population Prospect projects population will grow from 6.1 billion people in 2000 to 9.1 billion people in 2050, which is close to the population trajectories for the IMAGE, MiniCAM, and MERGE models.

In addition to fossil and industrial CO₂ emissions, each EMF scenario provides projections of methane, nitrous oxide, fluorinated greenhouse gases, and net land use CO₂ emissions out to 2100. These assumptions also are used in the three models while retaining the default radiative forcings due to other factors (e.g. aerosols and other gases). See the Appendix for greater detail.

F. Discount Rate

The choice of a discount rate, especially over long periods of time, raises highly contested and exceedingly difficult questions of science, economics, philosophy, and law. Although it is well understood that the discount rate has a large influence on the current value of future damages, there is no consensus about what rates to use in this context. Because carbon dioxide emissions are long-lived, subsequent damages occur over many years. In calculating the SCC, we first estimate the future damages to agriculture, human health, and other market and non-market sectors from an additional unit of carbon dioxide emitted in a particular year in terms of reduced consumption (or consumption equivalents) due to the impacts of elevated temperatures, as represented in each of the three IAMs. Then we discount the stream of future damages to its present value in the year when the additional unit of emissions was released using the selected discount rate, which is intended to reflect society's marginal rate of substitution between consumption in different time periods.

For rules with both intra- and intergenerational effects, agencies traditionally employ constant discount rates of both 3 percent and 7 percent in accordance with OMB Circular A-4. As Circular A-4 acknowledges, however, the choice of discount rate for intergenerational problems raises distinctive

¹⁵ For instance, in the MESSAGE model's reference case total primary energy production from nuclear, biomass, and non-biomass renewables is projected to increase from about 15 percent of total primary energy in 2000 to 54 percent in 2100. In comparison, the MiniCAM reference case shows 10 percent in 2000 and 21 percent in 2100.

¹⁶ For example, MiniCAM projects if all non-US OECD countries reduce CO₂ emissions to 83 percent below 2005 levels by 2050 (per the G-8 agreement) but all other countries continue along a BAU path CO₂ concentrations in 2100 would drop from 794 ppmv in its reference case to 762 ppmv.

problems and presents considerable challenges. After reviewing those challenges, Circular A-4 states, “If your rule will have important intergenerational benefits or costs you might consider a further sensitivity analysis using a lower but positive discount rate in addition to calculating net benefits using discount rates of 3 and 7 percent.” For the specific purpose of developing the SCC, we adapt and revise that approach here.

Arrow et al. (1996) outlined two main approaches to determine the discount rate for climate change analysis, which they labeled “descriptive” and “prescriptive.” The descriptive approach reflects a positive (non-normative) perspective based on observations of people’s actual choices—e.g., savings versus consumption decisions over time, and allocations of savings among more and less risky investments. Advocates of this approach generally call for inferring the discount rate from market rates of return “because of a lack of justification for choosing a social welfare function that is any different than what decision makers [individuals] actually use” (Arrow et al. 1996).

One theoretical foundation for the cost-benefit analyses in which the social cost of carbon will be used—the Kaldor-Hicks potential-compensation test—also suggests that market rates should be used to discount future benefits and costs, because it is the market interest rate that would govern the returns potentially set aside today to compensate future individuals for climate damages that they bear (e.g., Just et al. 2004). As some have noted, the word “potentially” is an important qualification; there is no assurance that such returns will actually be set aside to provide compensation, and the very idea of compensation is difficult to define in the intergenerational context. On the other hand, societies provide compensation to future generations through investments in human capital and the resulting increase in knowledge, as well as infrastructure and other physical capital.

The prescriptive approach specifies a social welfare function that formalizes the normative judgments that the decision-maker wants explicitly to incorporate into the policy evaluation—e.g., how inter-personal comparisons of utility should be made, and how the welfare of future generations should be weighed against that of the present generation. Ramsey (1928), for example, has argued that it is “ethically indefensible” to apply a positive pure rate of time preference to discount values across generations, and many agree with this view.

Other concerns also motivate making adjustments to descriptive discount rates. In particular, it has been noted that the preferences of future generations with regard to consumption versus environmental amenities may not be the same as those today, making the current market rate on consumption an inappropriate metric by which to discount future climate-related damages. Others argue that the discount rate should be below market rates to correct for market distortions and uncertainties or inefficiencies in intergenerational transfers of wealth, which in the Kaldor-Hicks logic are presumed to compensate future generations for damage (a potentially controversial assumption, as noted above) (Arrow et al. 1996, Weitzman 1999).

Further, a legitimate concern about both descriptive and prescriptive approaches is that they tend to obscure important heterogeneity in the population. The utility function that underlies the prescriptive approach assumes a representative agent with perfect foresight and no credit constraints. This is an artificial rendering of the real world that misses many of the frictions that characterize individuals’ lives

initially, but applies a graduated scale of lower discount rates further out in time.²⁴ A key question that has emerged with regard to both of these approaches is the trade-off between potential time inconsistency and giving greater weight to far future outcomes (see the EPA Science Advisory Board's recent comments on this topic as part of its review of their *Guidelines for Economic Analysis*).²⁵

The Discount Rates Selected for Estimating SCC

In light of disagreement in the literature on the appropriate market interest rate to use in this context and uncertainty about how interest rates may change over time, we use three discount rates to span a plausible range of certainty-equivalent constant discount rates: 2.5, 3, and 5 percent per year. Based on the review in the previous sections, the interagency workgroup determined that these three rates reflect reasonable judgments under both descriptive and prescriptive approaches.

The central value, 3 percent, is consistent with estimates provided in the economics literature and OMB's Circular A-4 guidance for the consumption rate of interest. As previously mentioned, the consumption rate of interest is the correct discounting concept to use when future damages from elevated temperatures are estimated in consumption-equivalent units. Further, 3 percent roughly corresponds to the after-tax riskless interest rate. The upper value of 5 percent is included to represent the possibility that climate damages are positively correlated with market returns. Additionally, this discount rate may be justified by the high interest rates that many consumers use to smooth consumption across periods.

The low value, 2.5 percent, is included to incorporate the concern that interest rates are highly uncertain over time. It represents the average certainty-equivalent rate using the mean-reverting and random walk approaches from Newell and Pizer (2003) starting at a discount rate of 3 percent. Using this approach, the certainty equivalent is about 2.2 percent using the random walk model and 2.8 percent using the mean reverting approach.²⁶ Without giving preference to a particular model, the average of the two rates is 2.5 percent. Further, a rate below the riskless rate would be justified if climate investments are negatively correlated with the overall market rate of return. Use of this lower value also responds to certain judgments using the prescriptive or normative approach and to ethical objections that have been raised about rates of 3 percent or higher.

²⁴ For instance, the UK applies a discount rate of 3.5 percent to the first 30 years; 3 percent for years 31 - 75; 2.5 percent for years 76 - 125; 2 percent for years 126 - 200; 1.5 percent for years 201 - 300; and 1 percent after 300 years. As a sensitivity, it recommends a discount rate of 3 percent for the first 30 years, also decreasing over time.

²⁵ Uncertainty in future damages is distinct from uncertainty in the discount rate. Weitzman (2008) argues that Stern's choice of a low discount rate was "right for the wrong reasons." He demonstrates how the damages from a low probability, catastrophic event far in the future dominate the effect of the discount rate in a present value calculation and result in an infinite willingness-to-pay for mitigation today. Newbold and Daigneault, (2009) and Nordhaus (2009) find that Weitzman's result is sensitive to the functional forms chosen for climate sensitivity, utility, and consumption. Summers and Zeckhauser (2008) argue that uncertainty in future damages can also work in the other direction by increasing the benefits of waiting to learn the appropriate level of mitigation required.

²⁶ Calculations done by Pizer et al. using the original simulation program from Newell and Pizer (2003).

**Federal Energy Regulatory Commission**

Office of Energy Projects
Washington, DC 20426

Rio Grande LNG Project

Final Environmental Impact Statement

Volume I



Rio Grande LNG, LLC and Rio Bravo Pipeline Company, LLC

April 2019**Docket Nos. CP16-454-000, CP16-455-000****FERC/EIS-0287F****Cooperating Agencies:**

U.S. Environmental
Protection Agency



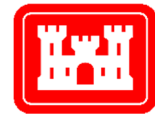
U.S. Department
of Transportation



U.S. Coast Guard



U.S. Department
of Energy



U.S. Army
Corps of Engineers



U.S. Fish and
Wildlife Service



Federal Aviation
Administration



National Park Service



National Oceanic
Atmospheric Administration -
National Marine Fisheries Service

EXECUTIVE SUMMARY

On May 5, 2016, Rio Grande LNG, LLC (RG LNG) and Rio Bravo Pipeline Company, LLC (RB Pipeline), filed a joint application with the Federal Energy Regulatory Commission (Commission or FERC) for authorization pursuant to Sections 3(a) and 7(c) of the Natural Gas Act (NGA). In Docket No. CP16-454-000, RG LNG requests authorization under Section 3(a) of the NGA and Part 153 of the Commission's regulations to site, construct, and operate facilities necessary to liquefy and export natural gas at a proposed site (the Rio Grande LNG Terminal) along the Brownsville Ship Channel (BSC) in Cameron County, Texas. In Docket No. CP16-455-000, RB Pipeline requests a Certificate of Public Convenience and Necessity (Certificate) pursuant to Section 7(c) of the NGA and Part 157 of the Commission's regulations to site, construct, operate, and maintain a new pipeline system (the Rio Bravo Pipeline or Pipeline System) and related facilities in Jim Wells, Kleberg, Kenedy, Willacy, and Cameron Counties, Texas. Collectively, RG LNG and RB Pipeline are called RG Developers; the Rio Grande LNG Terminal and the Rio Bravo Pipeline are collectively called the Rio Grande LNG Project (Project).

The purpose of this environmental impact statement (EIS) is to inform FERC decision-makers, the public, and the permitting agencies about the potential adverse and beneficial environmental impacts of the proposed Project and its alternatives, and recommend mitigation measures that would reduce adverse impacts to the extent practicable. We¹ prepared this EIS to assess the environmental impacts associated with construction and operation of the Project as required under the National Environmental Policy Act of 1969, as amended (NEPA). Our analysis is based on information provided by RG Developers, and further developed from data requests; field investigations; scoping; literature research; contacts with or comments from federal, state, and local agencies; and comments from individual members of the public.

The FERC is the lead agency for the preparation of the EIS. The U.S. Army Corps of Engineers (COE), U.S. Coast Guard (Coast Guard), U.S. Department of Energy (DOE), U.S. Department of Transportation's (DOT) Pipeline and Hazardous Materials Safety Administration and Federal Aviation Administration (FAA), the U.S. Fish and Wildlife Service (FWS), the National Park Service (NPS), the U.S. Environmental Protection Agency (EPA), and the National Oceanic and Atmospheric Administration – National Marine Fisheries Service (NMFS) are participating in the NEPA review as cooperating agencies.²

PROPOSED ACTION

RG Developers' stated purpose of the Rio Grande LNG Project is to develop, own, operate, and maintain a natural gas pipeline system and a liquefied natural gas (LNG) export facility in South Texas that provides an additional source of firm, long-term, and competitively priced LNG to the global market. The Project is intended to access natural gas from the Agua Dulce hub area and would also provide LNG for truck transport and for fueling operations. Any exports would be consistent with authorizations from the DOE. The DOE granted an

¹ We," "us," and "our" refer to the environmental and engineering staff of the FERC's Office of Energy Projects.

² A cooperating agency is an agency that has jurisdiction over all or part of a project area and must make a decision on a project, and/or an agency that provides special expertise with regard to environmental or other resources.

authorization to RG LNG for export to countries having a free trade agreement with the United States that includes national treatment for trade in natural gas on August 17, 2016. An application for export to non-free trade agreement nations is pending the DOE's review of RG LNG's application, which was filed on December 23, 2015.

Rio Grande LNG Terminal

The Rio Grande LNG Terminal would be located on about 750.4 acres of a 984.2-acre parcel of land along the northern shore of the BSC in Cameron County, Texas,³ approximately 9.8 miles east of Brownsville and about 2.2 miles west of Port Isabel. The Project, which is currently expected to begin operations in Year 4 of construction, would produce a nominal capacity of about 27 million tons per annum of LNG during its minimum 20-year life (which could be extended to a 50-year life). The LNG Terminal would include the following major facilities:

- six liquefaction trains, each with a liquefaction capacity of 4.5 million tons per annum of LNG for export;
- four full-containment LNG storage tanks, each with a net capacity of 180,000 cubic meters;
- docking facilities for two LNG carriers and a turning basin;
- LNG truck loading facilities with four loading bays; and
- RB Pipeline's Compressor Station 3, a metering site, and the interconnection to the Pipeline System.

Rio Bravo Pipeline System

The LNG Terminal would receive natural gas via the proposed Rio Bravo Pipeline System, which would connect the LNG Terminal to the existing infrastructure near the Agua Dulce hub⁴ Nueces County. The Pipeline System would include a 42-inch-diameter Header System, which would include dual pipelines for the first 0.8 mile of its route, and dual 42-inch-diameter mainline pipelines (individually identified as Pipeline 1 and Pipeline 2). The Header System would be about 2.4 miles of pipeline in Kleberg and Jim Wells Counties that would collect gas from six existing pipeline systems for transport into Pipelines 1 and 2. Pipelines 1 and 2 would be about 135.5 miles long, originate in Kleberg County, and transit through Kenedy, Willacy, and Cameron Counties before terminating at Compressor Station 3 within the boundaries of the LNG Terminal. RB Pipeline proposes three compressor stations and two interconnect booster compressor stations along the Pipeline System. The Pipeline System, when complete, would provide the Rio Grande LNG Terminal with about 4.5 billion cubic feet per day of gas. Although the Header System and Pipeline 1 are proposed to be constructed at the same

³ All Project locations referred to in this EIS (including towns, counties, and other municipalities) are within the state of Texas, unless specifically stated otherwise.

⁴ A natural gas hub is an interconnection of two or more pipelines that allows the transfer of gas.

time, Pipeline 2 would be constructed on a separate schedule (approximately 18 months after the completion of Pipeline 1) to accommodate the staged construction of the LNG Terminal; therefore, RB Pipeline estimates that Pipeline 1 would begin operation in Year 4 of construction, concurrent with the LNG Train 1.

PUBLIC INVOLVEMENT

On March 20, 2015, RG Developers filed a request with the FERC to use our pre-filing review process. This request was approved on April 13, 2015, and pre-filing Docket No. PF15-20-000 was established in order to place information filed by RG Developers, documents issued by the FERC, as well as comments from the public, agencies, Native American tribes, organizations, and other stakeholders into the public record. RG Developers held open houses in Kingsville, Raymondville, and Brownsville on May 19, 20, and 21, 2015, respectively, to provide information to the public about the Rio Grande LNG Project. FERC staff participated in the meetings, describing the FERC process and providing those attending with information on how to file comments with the FERC.

On July 23, 2015, the FERC issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Planned Rio Grande LNG Project and Rio Bravo Pipeline Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings*. This notice was sent to about 720 interested parties including federal, state, and local officials; agency representatives; conservation organizations; Native American tribes; local libraries and newspapers; and property owners in the vicinity of the proposed Project. Publication of the *Notice of Intent* established a 30-day public scoping period for the submission of comments, concerns, and issues related to the environmental aspects of the Project. In addition, in July and August 2015, we met with representatives of interested agencies, including the FWS, COE, Coast Guard, NMFS, NPS, and the Texas Parks and Wildlife Department (TPWD) and conducted a site visit at the LNG Terminal site.

During the scoping period, we received comments on a variety of environmental issues. Substantive environmental issues identified through this public review process are addressed in this EIS. The transcripts of the public scoping meetings and all written comments are part of the FERC's public record for the Rio Grande LNG Project and are available for viewing on the FERC internet website (<http://www.ferc.gov>).⁵

On October 12, 2018, we issued a *Notice of Availability of the Draft Environmental Impact Statement for the Proposed Rio Grande LNG Project*. This notice, which was published in the Federal Register, listed the date and locations of public comment sessions and established a closing date of December 3, 2018, for receiving comments on the draft EIS. Copies of the notice were mailed to 3,253 stakeholders. The EPA noticed the draft EIS in the Federal Register on October 18, 2018. We held three public comment sessions in the Project area to solicit and receive comments on the draft EIS. These sessions were held on November 13, 14, and 15, 2018, in Kingsville, Raymondville, and Port Isabel, respectively. The sessions provided the

⁵ To access public documents on the FERC website, use the "eLibrary" link, select "General Search" from the eLibrary menu, and enter the docket number, excluding the last three digits, in the "Docket Number" field (i.e., PF15-20). Be sure to select an appropriate date range.

public an opportunity to present oral comments directly to FERC staff (which were recorded by a court reporter) on the environmental analysis presented in the draft EIS. A total of 63 individuals provided oral comments. We also received 861 comment and form letters from federal agencies, companies/organizations, and individuals in response to the draft EIS. Transcripts from the public sessions, as well as written comment letters, were entered into the public record and are available for viewing on FERC's eLibrary website (www.ferc.gov).⁶ All substantive environmental comments on the draft EIS have been addressed in this final EIS. In addition, issues raised in the comments and our responses are provided in appendix R of this final EIS.

PROJECT IMPACTS

We evaluated the potential impacts of construction and operation of the Project on geology; soils; water use and quality; wetlands; vegetation; wildlife, aquatic resources, and essential fish habitat (EFH); threatened, endangered, and other special-status species; land use, recreation, and visual resources; socioeconomics; cultural resources; air quality and noise; reliability and safety; and cumulative impacts. Where necessary, we recommend additional mitigation to minimize or avoid these impacts. Section 5 of the EIS contains a compilation of our recommendations.

Overall, construction and installation of facilities for the Project would require temporary disturbance of about 3,633.2 acres of land. Following construction, the LNG Terminal site and pipeline facilities would encompass about 2,149.2 acres. The remaining 1,484.0 acres would return to pre-construction conditions and uses. Based on our analysis, scoping, and agency consultations, the major issues are impacts on surface water resources; wetlands; wildlife and aquatic resources; threatened and endangered species; land use, recreation, and visual resources; socioeconomics; cultural resources; air quality; noise; reliability and safety; and cumulative impacts.

Surface Water Resources

The proposed LNG Terminal site is on the north shore of the BSC, a man-made, marine navigation channel that connects to the Gulf of Mexico. The BSC, along with its Entrance Channel and Jetty Channel, form the Brazos Island Harbor. As a separate federal action, the COE has determined that deepening the Brazos Island Harbor from its current depth of -42 feet relative to mean lower low water (MLLW) to -52 feet MLLW would be in the national interest and would not result in significant environmental impacts (COE 2014); however, the deepening has not yet begun. The western boundary of the LNG Terminal site is the Bahia Grande Channel, which was constructed in 2005 to connect the BSC to the Bahia Grande to restore tidal exchange to the Bahia Grande (FWS 2015a); this channel is proposed for future widening from its current 34-foot width to a 250-foot width to increase tidal exchange (Ocean Trust 2009, FWS 2010a).

⁶ The public meeting transcripts are available on FERC's eLibrary website (see accession numbers 20190102-4002, 20190102-4003, and 20190102-4005).

temporary, minor impacts on EFH, NMFS does not have EFH conservation recommendations for the Project.

Threatened, Endangered, and Other Special-status Species

A total of 25 species that are federally listed as threatened or endangered, or those that are candidates, proposed, or under review for listing, may occur in counties affected by the Project. Within these counties, or offshore of them, critical habitat has been designated for two species, the piping plover and the loggerhead sea turtle. We determined that the Project would have *no effect* on one federally listed and one candidate species, is *not likely to adversely affect* 19 federally listed (or proposed) species, and would *not result in a trend towards federal listing* for two species (one candidate and one that is under review). We have also determined that the Project would not be likely to destroy or adversely modify designated critical habitat for the piping plover or loggerhead sea turtle. Our *not likely to adversely affect* determinations for the West Indian manatee and federally listed plants are based on our recommendations to conduct appropriate training and complete applicable surveys, respectively. Similarly, our *not likely to adversely affect* determination for the northern aplomado falcon is related to nest identification, monitoring, and implementation of best management practices for the species, but also accounts for its coverage under a Safe Harbor Agreement that allows development (and take) in the Project area. As RG Developers have committed to multiple mitigation measures for the protection of federally and state listed species (e.g., implementing biological monitors, following agency-recommended best management practices), we have also recommended that RG Developers file documentation demonstrating that such measures have been incorporated into its environmental training program.

We have determined that the Project *is likely to adversely affect* the ocelot and the Gulf coast jaguarundi. The ocelot breeds in two locations in South Texas, including the vicinity of the proposed pipelines in Kenedy and Willacy Counties, as well as in the Laguna Atascosa National Wildlife Refuge, adjacent to the LNG Terminal. Direct and indirect impacts on the ocelot's preferred habitat (upland shrub habitat, particularly with thornscrub vegetation) would result from Project construction and operation. Within the lower Laguna Atascosa National Wildlife Refuge, indirect impacts on the ocelot may occur from an increase in ambient sound levels, which may also render suitable habitat unattractive to ocelots. In addition, suitable habitat would be lost within the LNG Terminal site boundaries, and potentially along the pipeline route. The loss of suitable habitat, through either direct or indirect pathways, has the potential to result in significant impacts on ocelots and ocelot recovery. Although there is a lack of confirmed sightings for the jaguarundi in the Project area, its range and habitat usage overlaps that of the ocelot and, if present in the area, the jaguarundi would experience impacts similar to those discussed for the ocelot. Final mitigation requirements would be determined by FWS in its Biological Opinion and through completion of the Endangered Species Act Section 7 consultation process. Because consultation with the FWS and NMFS is ongoing, we recommend completion of any necessary Endangered Species Act consultation with these agencies prior to construction.

1.0 INTRODUCTION

On May 5, 2016, Rio Grande LNG, LLC (RG LNG) and Rio Bravo Pipeline Company, LLC (RB Pipeline), filed a joint application with the Federal Energy Regulatory Commission (Commission or FERC) for authorization pursuant to Sections 3(a) and 7(c) of the Natural Gas Act (NGA). In Docket No. CP16-454-000, RG LNG requests authorization under Section 3(a) of the NGA and Part 153 of the Commission's regulations to site, construct, and operate facilities necessary to liquefy and export natural gas at a proposed site (the Rio Grande LNG Terminal) along the Brownsville Ship Channel (BSC) in Cameron County, Texas. In Docket No. CP16-455-000, RB Pipeline requests a Certificate of Public Convenience and Necessity (Certificate) pursuant to Section 7(c) of the NGA and Part 157 of the NGA to site, construct, operate, and maintain a new pipeline system (the Rio Bravo Pipeline or Pipeline System) in Jim Wells, Kleberg, Kenedy, Willacy, and Cameron Counties, Texas. Collectively, RG LNG and RB Pipeline are called RG Developers; the Rio Grande LNG Terminal and the Rio Bravo Pipeline are collectively called the Rio Grande LNG Project (Project).

As part of the Commission's consideration of this application, we¹ prepared this final environmental impact statement (EIS) to assess the potential environmental impacts resulting from construction and operation of the facilities proposed by RG Developers in accordance with the requirements of the National Environmental Policy Act of 1969 (NEPA).

The Rio Grande LNG Terminal would be located on about 750.4 acres of a 984.2-acre parcel of land along the northern shore of the BSC in Cameron County², approximately 9.8 miles east of Brownsville and about 2.2 miles west of Port Isabel. The Project would produce a nominal capacity of about 27 million tons per annum (MTPA) of liquefied natural gas (LNG) during its minimum 20-year life (which could be extended to a 50-year life).

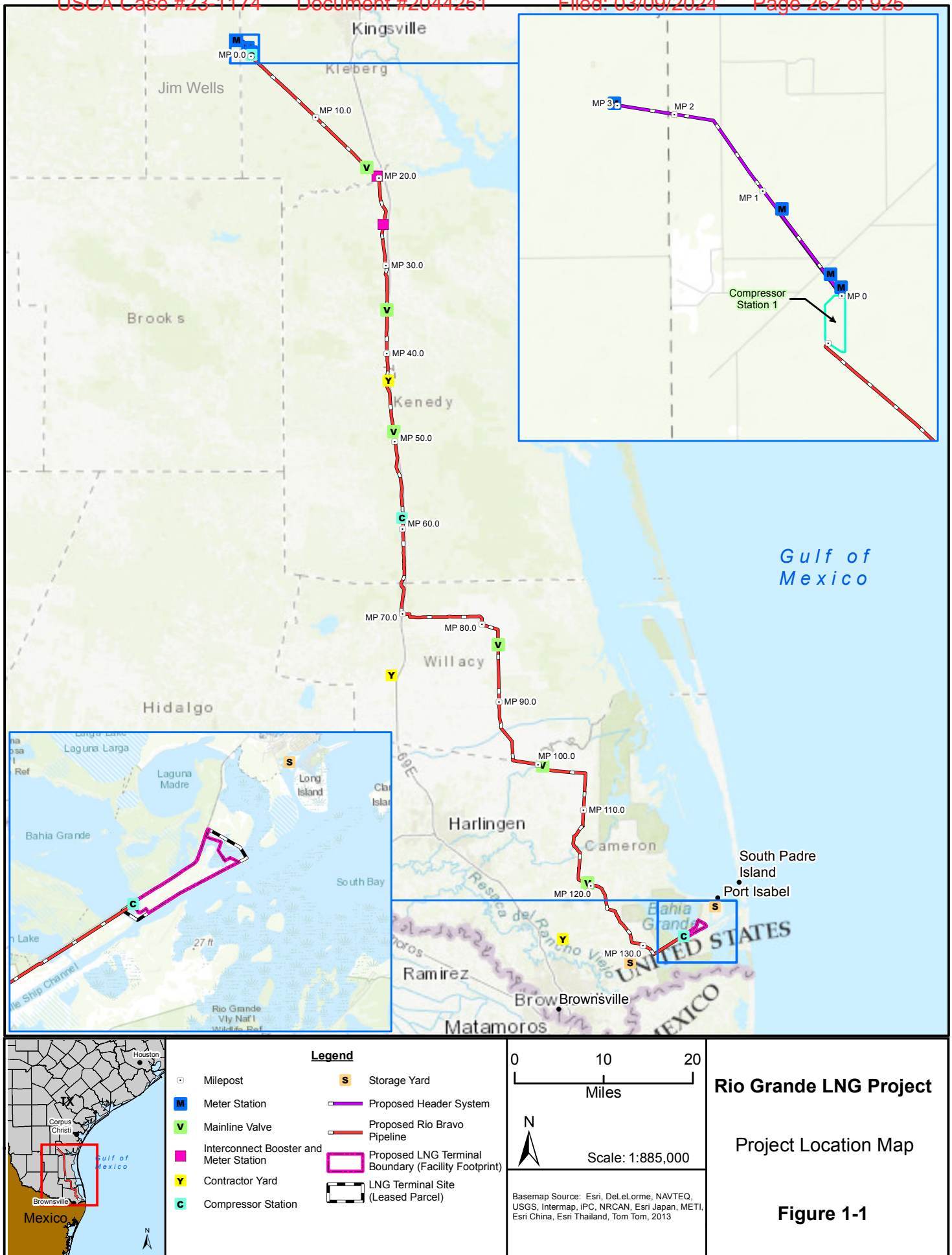
The vertical line in the margin identifies text that is new or modified in the final EIS and differs materially from corresponding text in the draft EIS. Changes were made to address comments from cooperating agencies and other stakeholders on the draft EIS, incorporate applicant-proposed modifications to the Project after publication of the draft EIS, update information included in the draft EIS, and incorporate information filed by RG Developers in response to our recommendations in the draft EIS.

The LNG Terminal would receive natural gas via the proposed Rio Bravo Pipeline System, which would connect the LNG Terminal to the existing infrastructure near the Agua Dulce hub³ in Nueces County. The Agua Dulce hub includes interconnects to natural gas pipelines including the Gulf Coast Mainline, Transcontinental Pipeline, and Kinder Morgan Tejas Pipeline near the origin of the Rio Bravo Pipeline System, allowing for multiple interconnects to the Rio Bravo Pipeline. Figure 1-1 depicts the general location of the Rio Grande LNG Project.

¹ "We," "us," and "our" refer to the environmental staff of the FERC's Office of Energy Projects.

² All Project locations referred to in this EIS (including towns, counties, and other municipalities) are within the state of Texas, unless specifically stated otherwise.

³ A natural gas hub is an interconnection of two or more pipelines that allows the transfer of gas.



The natural gas would be liquefied at the Rio Grande LNG Terminal using six liquefaction trains, each of which would have a nominal capacity of 4.5 MTPA, and stored onsite in four, full-containment LNG storage tanks with a capacity of 180,000 cubic meters (m³) each. The LNG would be loaded onto LNG vessels for export overseas and onto LNG trucks for road distribution to vehicle refueling stations in south Texas. During operations, RG Developers anticipate that an average of 312 LNG vessels would make port calls at the LNG Terminal each year. In addition, the Project would have the capacity to load 12 to 15 LNG trucks per day at each of the four loading bays. Detailed information regarding the facility components is provided in section 2.1.1.

The Pipeline System would include a 42-inch-diameter Header System, which would include dual pipelines for the first 0.8 mile of its route, and dual 42-inch-diameter mainline pipelines (individually identified as Pipeline 1 and Pipeline 2). The Header System would be about 2.4 miles of pipeline in Kleberg and Jim Wells Counties that would collect gas from six existing pipeline systems for transport into Pipelines 1 and 2. Pipelines 1 and 2 would be about 135.5 miles long, originate in Kleberg County, and transit through Kenedy, Willacy, and Cameron Counties before terminating at a compressor station within the boundaries of the LNG Terminal. Although the Pipeline System itself is not within the Agua Dulce hub, it has been sited to allow ease of connection to the existing Agua Dulce infrastructure. The Pipeline System, when complete, would provide the Rio Grande LNG Terminal with about 4.5 billion cubic feet per day (Bcf/d) of firm capacity. Although the Header System and Pipeline 1 are proposed to be constructed at the same time, Pipeline 2 would be constructed on a separate schedule (approximately 18 months after the completion of Pipeline 1) to accommodate the staged construction of the LNG Terminal; therefore, RB Pipeline estimates that Pipeline 1 would begin operation in late 2021, concurrent with the LNG Train 1 (see section 2.3).

RB Pipeline's proposed facilities are summarized below:

- 2.4 miles of 42-inch-diameter pipeline, including 0.8 mile of dual pipeline, to gather gas from existing systems in Kleberg and Jim Wells Counties (referred to as the Header System);
- 135.5 miles of 42-inch-diameter pipeline crossing Kleberg, Kenedy, Willacy, and Cameron Counties (Pipeline 1);
- 135.5 miles of 42-inch-diameter pipeline that would parallel Pipeline 1 with an offset of 25 feet (Pipeline 2);
- a new 180,000-horsepower (hp) compressor station in Kleberg County that would include two pig launchers (one for each pipeline) and a metering site (Compressor Station 1);
- a new 180,000-hp compressor station in Kleberg County that would include two pig launcher/receivers (Compressor Station 2);

- a new 180,000-hp compressor station within the boundaries of the LNG Terminal in Cameron County that would include a gas custody transfer meter and pig receivers (Compressor Station 3);
- two new 30,000-hp interconnect booster compressor stations (booster station) in Kenedy County, each of which would contain a metering site;
- four metering sites along the Header System;
- six mainline valve (MLV) sites (two MLVs per site);
- temporary and permanent access roads; and
- temporary contractor/pipe yards and offsite storage.

Under Section 3 of the NGA, FERC considers all factors bearing on the public interest as part of its decision to authorize natural gas facilities. Specifically regarding whether to authorize natural gas facilities used for importation or exportation, FERC shall authorize the proposal unless it finds that the proposed facilities would not be consistent with the public interest.

Under Section 7 of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate to construct and operate them. The Commission bases its decisions on technical competence, financing, rates, market demand, gas supply, environmental impact, long-term feasibility, and other issues concerning a proposed Project.

1.1 PURPOSE AND NEED

RG Developers' stated purpose of the Rio Grande LNG Project is to develop, own, operate, and maintain a natural gas pipeline system to access natural gas from the Agua Dulce Hub and an LNG export facility in south Texas to export 27 MTPA of natural gas that provides an additional source of firm, long-term, and competitively priced LNG to the global market. The Project purpose also includes providing LNG for truck transport and for fueling operations. Any exports would be consistent with authorizations from the U.S. Department of Energy (DOE). The DOE granted an authorization to RG LNG for export to countries having a free trade agreement (FTA) with the United States that includes national treatment for trade in natural gas (FTA nations) on August 17, 2016. An application for export to non-FTA nations is pending the DOE's review of RG Developers' application, which was filed on December 23, 2015.

RB Pipeline published a Notice of Open Season on May 24, 2016, and executed a Precedent Agreement on June 23, 2016, with RioGas Marketing, LLC. The Precedent Agreement included the total capacity of the Pipeline System (4.5 Bcf/d) for a period of 20 years. A third-party would own the natural gas entering the Pipeline System. A portion of that natural gas would be furnished to RB Pipeline for operation of the Pipeline System. Additional natural gas owned by the third-party would be furnished to RG LNG for operation of the LNG

responsibilities, the EPA is responsible for implementing certain procedural provisions of NEPA (e.g., publishing the Notices of Availability of the draft and final EISs in the Federal Register) to establish statutory timeframes for the environmental review process.

1.2.10 National Oceanic and Atmospheric Administration, National Marine Fisheries Service

NMFS, along with the FWS, has authority under the ESA to work with federal agencies and applicants to conserve ESA-listed species and their critical and other habitats. The FWS and NMFS will consult with lead federal agencies for actions that may affect ESA-listed species and/or critical habitats. NMFS also has the authority under the MSFCMA and the Marine Mammal Protection Act (MMPA) to review a project's impacts to EFH and to protect marine mammals.

1.3 PUBLIC REVIEW AND COMMENT

1.3.1 Pre-filing Process and Scoping

On March 20, 2015, RG Developers filed a request with the FERC to use our pre-filing review process. This request was approved on April 13, 2015, and pre-filing Docket No. PF15-20-000 was established in order to place information filed by RG Developers, documents issued by the FERC, as well as comments from the public, agencies, tribes, organizations, and other stakeholders into the public record. The pre-filing review process provides opportunities for interested stakeholders to become involved early in project planning, facilitates interagency cooperation, and assists in the identification and resolution of issues prior to a formal application being filed with the FERC.

RG Developers held open houses in Kingsville, Raymondville, and Brownsville on May 19, 20, and 21, 2015, respectively, to provide information to the public about the Rio Grande LNG Project. FERC staff participated in the meeting, describing the FERC process and providing those attending with information on how to file comments with the FERC.

On July 23, 2015, the FERC issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Planned Rio Grande LNG Project and Rio Bravo Pipeline Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings* (NOI). This notice was sent to about 720 interested parties including federal, state, and local officials; agency representatives; conservation organizations; Native American tribes; local libraries and newspapers; and property owners in the vicinity of the planned Project. Publication of the NOI established a 30-day public scoping period for the submission of comments, concerns, and issues related to the environmental aspects of the Project.

The FERC conducted three public scoping meetings to provide an opportunity for the public to learn more about the Rio Grande LNG Project and to participate in our analysis by providing written or oral comments on environmental issues to be included in the EIS. Each scoping meeting had representatives from both the FERC staff and RG Developers, as well as informational materials on the Project and the FERC process. Two of the scoping meetings were held along the RB Pipeline route in Raymondville (August 10, 2015) and Kingsville (August 13, 2015). Five individuals elected to provide oral comments at the Raymondville

scoping meeting; a transcript of these comments is part of the public record for the Rio Grande LNG Project and is available for viewing on the FERC internet website (<http://www.ferc.gov>). No oral comments were provided at the Kingsville scoping meeting.

A third scoping meeting was held in Port Isabel on August 11, 2015, near the site of the proposed Rio Grande LNG Terminal. As three LNG terminals have been proposed for our consideration along the BSC (the Rio Grande LNG Terminal, the Texas LNG Terminal [FERC Docket No. CP16-116-000], and the Annova LNG Terminal [FERC Docket No. CP16-480-000]), the Port Isabel scoping meeting included the applicants and informational materials for each of the three projects. The intent of the combined scoping meeting was to provide interested parties the opportunity to discuss, and provide comments for, all three projects in one venue. A total of 142 individuals elected to provide oral comments; the transcript of these comments is also available for viewing on the FERC internet website. All comments received at this scoping meeting were reviewed during preparation of this EIS, and incorporated as appropriate; however, each project is being individually assessed in a separate EIS.

On July 15, 2015, we met with representatives of the COE, NMFS, and the FWS; and on August 12, 2015, we met with representatives of the Coast Guard, FWS, NPS, and Texas Parks and Wildlife Department (TPWD) to discuss coordination of agency review, permit requirements, resource concerns, and each agency's interest in participating in our environmental review as a cooperating agency. Similar to the Port Isabel scoping meeting, these interagency meetings included discussions on each of the three planned or proposed LNG projects along the BSC. Additional calls, meetings, and site visits were also conducted prior to RG Developers filing their application, as well as bi-weekly calls between FERC, interested agencies, and representatives of RG Developers.

1.3.2 Public Review of the Draft EIS

On October 12, 2018, we issued a *Notice of Availability of the Draft Environmental Impact Statement for the Proposed Rio Grande LNG Project*. This notice, which was published in the Federal Register, listed the date and locations of public comment sessions and established a closing date of December 3, 2018, for receiving comments on the draft EIS. Copies of the notice were mailed to 3,253 stakeholders. The EPA noticed the draft EIS in the Federal Register on October 18, 2018.

We held three public sessions in the Project area to solicit and receive comments on the draft EIS. These sessions were held on November 13, 14, and 15, 2018, in Kingsville, Raymondville, and Port Isabel, respectively. The sessions provided the public an opportunity to present oral comments to a court reporter on the environmental analysis described in the draft EIS. A total of 63 individuals provided oral comments. We also received 861 comment and form letters from federal agencies, companies/organizations, and individuals in response to the draft EIS. All comments received are included in our comment responses contained in appendix R. Transcripts from the public sessions, as well as written comment letters, were

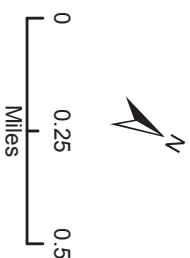
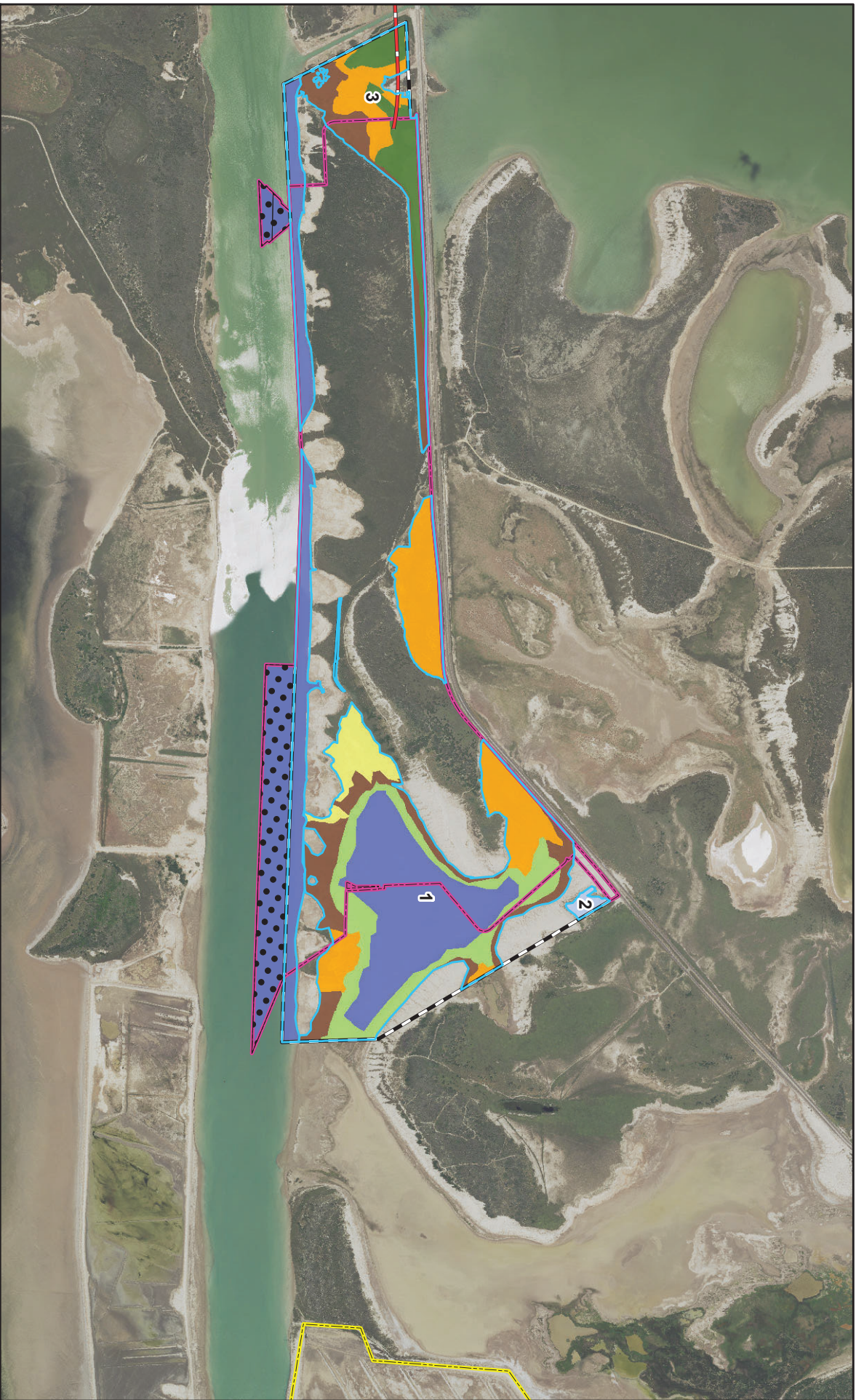
entered into the public record and are available for viewing on FERC's eLibrary website (www.ferc.gov).⁹

This EIS addresses all substantive comments submitted to the FERC or made at open houses, scoping meetings, interagency meetings, and public comment sessions on the draft EIS. Issues identified are summarized in table 1.3-1, along with the EIS section that addresses each topic. The most frequently received comments relate to socioeconomic impacts, air emissions, LNG safety and security, threatened and endangered species, and impacts on wetlands. Issues identified that are not considered environmental considerations or are outside the scope of the EIS process are summarized in table 1.3-2 and are not addressed further in this EIS.

1.3.3 Final EIS

The Commission mailed a copy of the *Notice of Availability of the Final Environmental Impact Statement for the Proposed Rio Grande LNG Project* to agencies, individuals, companies/organizations, and other parties identified in the distribution list provided as appendix A. Additionally, the final EIS was filed with the EPA for issuance of a Notice of Availability in the Federal Register.

⁹ The public meeting transcripts are available on FERC's eLibrary website (see accession numbers 20190102-4002, 20190102-4003, and 20190102-4005).



Scale: 1:27,000

Rio Grande LNG Project
Aquatic Resources within the
LNG Terminal Site

Figure 4.4.1-1

AERIAL IMAGERY: NATIONAL AGRICULTURE IMAGERY
PROGRAM (NAIP) 2014 - <http://datafarm.ars.usda.gov/>

provide seminars and career talks to discuss future career opportunities for the Project. In addition, RG Developers have included career development guidance on their Project-specific website that provides links to various career development organizations. RG Developers anticipate hiring a number of unskilled or semi-skilled workers that would be trained on the job through the National Center for Construction Education and Research System.

4.9.2.1 LNG Terminal

The civilian labor force is defined as the sum of employed persons and those actively searching and available for work (U.S. Census Bureau 2010a). During construction of the LNG Terminal, about 30 percent of the peak workforce (up to 1,568 workers of the 5,225 total workers) is expected to be hired from Cameron, Hidalgo, and Willacy Counties. In 2015, the civilian labor force numbered 164,483 in Cameron County, 330,963 in Hidalgo County, and 6,062 in Willacy County. The average per capita income in Cameron and Hidalgo Counties (\$15,105 and \$14,689, respectively) was below the State of Texas' average per capita income of \$26,999, while Willacy County's average per capita income is higher than the state (\$44,413). All three counties had a higher unemployment rate than the State of Texas (see table 4.9.1-1).

Construction of the LNG Terminal would stimulate the economy through an estimated \$20.2 billion in direct expenditures by RG LNG. Of the 20.2 billion, about \$3.2 billion would be direct expenditures for materials, a portion of which may be regionally or locally sourced. Specific to the LNG Terminal, RG LNG estimates that a percentage of the \$1.9 billion construction payroll (direct and indirect/support labor) would be spent locally by both local and non-local workers for the purchase of housing, food, gasoline, and other goods, services, and entertainment in the vicinity of the LNG Terminal site. Typically, construction activities increase economic activity within an area in several ways:

- a direct effect – hiring of local construction workers and purchases of goods and services from local businesses;
- an indirect effect – the additional demand for goods and services, such as replacing inventory from the firms that sell goods and services directly to a project or to workers and their families; and
- an induced effect – the spending of disposable income by the construction workers at local businesses, which in turn order new inventory from their suppliers.

The increase in economic activity resulting from direct, indirect, and induced effects of the LNG Terminal would result in a positive economic impact on the local economy. RG Developers' economic consultant (The Perryman Group [TPG]), estimated that the production of goods and services associated with construction of the LNG Terminal would amount to \$31.7 billion dollars in total economic impact across the United States, \$22.1 billion of which would be in Texas (\$5.6 billion in Cameron County) (TPG 2015).

Anticipated operational direct expenditures for the LNG Terminal would be \$1.9 billion annually. RG Developers anticipate that a 270-person operational staff for the LNG Terminal would result in an annual payroll of \$24.3 million. The annual direct, indirect, and induced expenditures during full operation of the Rio Grande LNG Project (including the LNG Terminal and the pipeline facilities) are estimated to result in economic impacts of about \$2.3 billion across the United States, \$2.1 billion of which would be in Texas (\$1.4 billion in Cameron County) (TPG 2015). We conclude that the expenditures and permanent workforce associated with operation of the LNG Terminal would result in positive, permanent impacts on the local economy.

4.9.2.2 Pipeline Facilities

During construction of the pipeline facilities, RB Pipeline estimated that about 10 percent of the workers would be hired from Jim Wells, Kleberg, Kenedy, Willacy, and Cameron Counties. In 2015, the civilian labor force in these counties ranged from a low of 185 in Kenedy County to a high of 164,483 in Cameron County. Four counties (Jim Wells, Kleberg, Kenedy, and Cameron Counties) have lower per capita incomes than the state average of \$26,999, while Willacy County's average per capita income is higher than the state average (\$44,413). Three counties (Kleberg, Willacy, and Cameron Counties) have higher unemployment rates (11.7, 11.5, and 10.0 percent, respectively) as compared to the state average of 7.0 percent, while Kenedy and Jim Wells Counties have lower unemployment rates (0.0 and 6.6, respectively).

About \$2.2 billion in direct expenditures are anticipated during construction of the pipeline facilities. RB Pipeline anticipates that about \$800 million would be spent nationally on materials, of which \$60 million would be spent on local and regional construction materials specifically for the pipeline facilities. In addition, a portion of the estimated \$809 million in labor, including about \$165 million in payroll for pipeline facility construction workers, would be spent locally by both local and non-local workers for the purchase of housing, food, gasoline, and other goods, services, and entertainment in the Project area.

Of the estimated \$69.6 billion in direct, indirect, and induced expenditures associated with construction of the full Rio Grande LNG Project, the pipeline facilities are estimated to be \$7.4 billion dollars in total economic impact across the United States, \$4.3 billion of which would occur in Texas (\$625 million in Cameron County) (TPG 2015). The increase in economic activity resulting from construction of the pipeline facilities would result in a temporary, positive economic impact in the affected counties.

Operation of the pipeline facilities is expected to result in \$179.7 million in annual operational total capital expenditures, a portion of which would be spent in the area of affect for the Pipeline System. Based on the average annual salary, about \$1.3 million in annual operational payroll would be allocated to the 20 new operational staff. These expenditures would result in a minor, but positive permanent impact on the local economy.

4.9.3 Tourism and Recreational Fishing

4.9.3.1 Tourism

In an area characterized by high poverty rates and unemployment, tourism is an important source of employment and income for the local communities. Tourism was identified as a significant resource of concern in scoping comments, along with recreation-based commerce in the Project vicinity. Major tourist draws in the Rio Grande Valley (Cameron, Willacy, Hidalgo, and Starr Counties) include, but are not limited to, South Padre Island beaches, boating, recreational fishing, wildlife viewing (particularly bird-watching), the Palo Alto Battlefield, and the Port Isabel Lighthouse (Rio Grande Valley Texas 2016). In 2014, visitors spent an estimated \$2.2 billion in the Rio Grande Valley, with Cameron County ranking 11th out of the 254 Texas counties for visitor spending (Dean Runyan Associates 2015). That same year, the travel industry supported 24,790 jobs in the Rio Grande Valley (Dean Runyan Associates 2015).

Out of 26 metropolitan statistical areas (MSAs) in Texas, the Brownsville-Harlingen MSA (which includes Cameron County) ranks seventh in the number of days tourists spent visiting (D.K. Shifflet & Associated, Ltd. 2015). In 2014, nature-oriented activities were the most popular tourist pastime, with 56.0 percent of visitors taking part in beach and waterfront activities; visiting state, local, and national parks; or wildlife viewing. About 23.6 percent of tourist trips included participation in outdoor sports, including fishing, biking, boating, and sailing (D.K. Shifflet & Associated, Ltd. 2015). In 2011, the direct, indirect, and induced impacts of nature-oriented tourism in the Rio Grande Valley spurred \$463 million in revenues and supported about 6,613 jobs (Texas A&M University 2012).

The Rio Grande Valley is cited as one of the top destinations for bird watching in the country (Mathis and Matisoff 2004, Glusac 2010, Thomas 2016). Located along the Central Flyway, the region is a major bird migration corridor for an estimated 500 bird species (see section 4.6.1). Birding destinations in the region include designated birding centers, NWRs, and local roads and landmarks. The Rio Grande Valley is home to the World Birding Center, a network of nine birding sites along a 120-mile-long corridor following the Rio Grande from the city of Roma to South Padre Island (see figure 4.9.3-1). Created through a partnership among the TPWD, FWS, and local communities, the goal of the World Birding Center is to protect native habitat while strengthening eco-tourism in the Rio Grande Valley (The World Birding Center 2016). Of the nine World Birding Center sites, the South Padre Island Nature and Birding Center is the closest to the LNG Terminal site, located about 7.8 miles away.

Additional birding sites in the Rio Grande Valley are part of the Great Texas Coastal Birding Trail, a state-designated system of 43 hiking and driving trails that includes 308 birding sites along the Texas Gulf Coast. The trail system is managed by the TPWD as part of the Great Texas Wildlife Trails and includes dozens of birding sites in the Rio Grande Valley. Birding site 039 is directly across from the proposed LNG Terminal site's western end, on the southern shore of Bahia Grande (see figure 4.9.3-1). The next closest designated birding sites include the Lower Texas Coast Site 032 in Laguna Vista, Site 033 in Port Isabel, and Site 043 at Boca Chica Beach, all more than 4 miles away. Additional detail on the Great Texas Coastal Birding Trail is provided in section 4.8.1.

that strictly control all aspects of the development's construction and operation, with risks largely confined within the LNG Terminal site property boundaries.

Visibility of the LNG Terminal site, which would include four 175-foot-high LNG storage tanks, could potentially affect values of residential properties. As discussed in section 4.8.2, it would be possible to see the LNG Terminal from some vantage points in Port Isabel and Laguna Heights, in particular at elevated sites such as the Port Isabel Lighthouse; however, the distance to the LNG Terminal site limits its visibility and as such it would not be a prominent feature in the viewshed for these residences. In summary, visibility impacts and the public's perception of risk of the LNG Terminal are factors that could affect residential property values in the Project area. These potential impacts would be attenuated by the distance of more than 2 miles between residential areas and the LNG Terminal site.

4.9.9.2 Pipeline Facilities

The pipeline facilities would be located primarily on agricultural land and open land. As shown in table 4.8.1-2, 11 structures would be within 50 feet of the construction work area; however, only two of those structures are residential, each of which would be within 50 feet of existing access roads that are proposed for use without modification. The pipeline facilities include the Header System, Pipelines 1 and 2, and associated aboveground facilities, three compressor stations, two booster stations, eight metering sites, and additional appurtenant facilities. Impacts from Compressor Station 3 are discussed above, as it would be within the boundaries of the LNG Terminal site. The remaining aboveground facilities would be constructed on open land, agricultural land, and barren land.

RB Pipeline would compensate the landowners for new easements at the aboveground facilities, as well as the temporary loss of land use associated with construction workspaces and any damages. The easement acquisition process is designed to provide fair compensation to the landowner for the right to use the property for facility construction and operation. The pipeline facilities are not expected to adversely impact property values outside of the pipeline right-of-way or aboveground facility boundaries.

Property values are generally based on the actual use of the land. Construction and operation of the Pipeline System would not change the general use of the land, but would preclude the construction of aboveground structures within the permanent easements. Because the Pipeline System would be located primarily within agricultural land, we have concluded that use of the land, and the associated property value, would likely not be negatively affected by the Pipeline System.

4.9.10 Environmental Justice

For projects with major aboveground facilities, FERC regulations (18 CFR 380.12(g)(1)) direct us to consider the impacts on human health or the environment of the local populations, including impacts that would be disproportionately high and adverse for minority and low-income populations. Additionally, during Project scoping, we received comments raising concerns about the impacts of the Rio Grande LNG Project on minority and low-income populations.

The EPA's Environmental Justice Policies (which are directed, in part, by Executive Order 12898: *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations*) focus on enhancing opportunities for residents to participate in decision making. The EPA (2011) states that Environmental Justice involves meaningful involvement so that: "(1) potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that would affect their environment and/or health; (2) the public's contributions can influence the regulatory agency's decision; (3) the concerns of all participants involved would be considered in the decision-making process; and (4) the decision-makers seek out and facilitate the involvement of those potentially affected." CEQ also has called on federal agencies to actively scrutinize a number of important issues with respect to environmental justice (CEQ 1997a).

As part of our NEPA review, we have evaluated potential environmental justice impacts related to the Rio Grande LNG Project taking into account the following:

- the racial and economic composition of affected communities;
- health-related issues that may amplify effects to minority or low-income individuals; and
- public participation strategies, including community or tribal participation in the NEPA process (CEQ 1997a).

The EPA provides guidance on determining whether there is a minority or low-income community to be addressed in a NEPA analysis. According to this guidance, minority population issues must be addressed when they comprise over 50 percent of an affected area or when the minority population percentage of the affected area is substantially greater than the minority percentage in the larger area of the general population. According to USC 689(3), low-income populations are defined as a geographic area represented by a census tract or equivalent county division where the poverty rate is 20 percent or greater, among other indicators.

In accordance with these guidelines, we prepared an environmental justice analysis for the Project. Public scoping comments expressed concern for impacts on low-income and minority populations. To develop a more accurate understanding of the racial and ethnic characteristics of the communities in the immediate vicinity of the LNG Terminal site and pipeline facilities, data were used from census block groups that intersect a 2-mile radius around the LNG Terminal site and the pipeline facilities, as opposed to the larger geographic areas included in census tract and county level data. In this analysis, the minority and low-income population percentages in the State of Texas and the Project-area counties were compared to the respective percentages within the census blocks groups. Table 4.9.10-1 identifies the racial composition and economic status of the affected block groups, counties, and the State of Texas for the LNG Terminal and pipeline facilities.

Table 4.9.10-1 Demographics and Economic Statistics in the Vicinity of the Rio Grande LNG Project								
State/County/ Block Group/ Tract	White, not Hispanic or Latino	African- American	Hispanic or Latino	Asian	American Indian and Alaskan Native	Native Hawaiian and Pacific Islander	Two or More Races	Population Below Poverty (%)
TEXAS	43.8	11.6	38.4	4.2	0.2	0.1	1.5	13.4
LNG TERMINAL								
Cameron	11.5	0.4	88.5	0.6	0.4	0.0	0.2	29.6
<i>Block Group 1</i>								
Tract 123.05	74.6	0.0	25.4	0.0	0.0	0.0	0.0	26.7
Tract 142 ^a	1.0	0.0	99.0	0.0	0.0	0.0	0.0	37.5
<i>Block Group 2</i>								
Tract 123.04 ^b	30.3	0.0	66.0	0.0	0.0	0.0	0.0	22.1
Tract 127 ^a	23.1	0.0	76.9	0.0	0.0	0.0	0.0	15.6
PIPELINE FACILITIES								
Cameron	11.5	0.4	88.5	0.6	0.4	0.0	0.2	29.6
<i>Block Group 1</i>								
Tract 101	17.0	0.0	82.5	0.0	0.5	0.0	0.0	20.0
Tract 102.01	13.1	0.0	86.9	0.0	0.0	0.0	0.0	26.7
Tract 122	16.2	0.0	83.7	0.0	0.0	0.0	0.1	16.8
Tract 123.01	37.4	1.7	54.1	4.6	0.0	0.0	0.6	23.9
Tract 142	1.0	0.0	99.0	0.0	0.0	0.0	0.0	37.5
<i>Block Group 2</i>								
Tract 127	23.1	0.0	76.9	0.0	0.0	0.0	0.0	15.6
Tract 142	21.1	0.7	78.2	0.0	0.0	0.0	0.0	39.2
<i>Block Group 3</i>								
Tract 101	4.6	0.0	95.4	0.0	0.0	0.0	0.0	47.6
<i>Block Group 4</i>								
Tract 101	68.5	0.0	29.9	0.0	0.0	0.0	1.6	16.8
Tract 122	11.4	0.0	88.5	0.0	0.2	0.0	0.0	35.5
<i>Block Group 5</i>								
Tract 122	2.2	0.8	94.7	1.1	0.0	0.0	1.3	41.0
Willacy	10.4	1.6	87.5	0.1	0.0	0.0	0.4	36.3
<i>Block Group 1</i>								
Tract 9506	17.0	0.0	82.0	0.0	0.9	0.0	0.0	35.4
Tract 9507	10.4	0.0	83.6	0.0	0.0	0.0	6.1	9.6
<i>Block Group 2</i>								
Tract 9505	10.5	0.0	89.5	0.0	0.0	0.0	0.0	18.3
Tract 9507	11.7	0.0	87.6	0.0	0.1	0.2	0.0	26.4
Kenedy	33.6	0.0	66.2	0.2	0.0	0.0	0.0	20.0
<i>Block Group 1</i>								
Tract 9501	33.6	0.0	66.2	0.2	0.0	0.0	0.0	20.0

Table 4.9.10-1 (continued) Demographics and Economic Statistics in the Vicinity of the Rio Grande LNG Project								
State/County/ Block Group/ Tract	White, not Hispanic or Latino	African- American	Hispanic or Latino	Asian	American Indian and Alaskan Native	Native Hawaiian and Pacific Islander	Two or More Races	Population Below Poverty (%)
Kleberg	21.9	3.9	71.3	2.0	0.1	0.0	0.6	19.7
<i>Block Group 1</i>								
Tract 201	39.5	0.0	58.2	1.1	0.0	0.0	0.3	4.2
<i>Block Group 2</i>								
Tract 201	26.4	2.1	70.2	1.3	0.0	0.0	0.0	10.6
Jim Wells	19.0	0.5	79.5	0.4	0.1	0.1	0.4	18.0
<i>Block Group 1</i>								
Tract 9504	11.7	2.5	85.9	0.0	0.0	0.0	0.0	5.2
<i>Block Group 3</i>								
Tract 9502	35.9	0.0	63.3	0.8	0.0	0.0	0.0	10.0
<i>Block Group 4</i>								
Tract 9507	25.8	0.0	74.2	0.0	0.0	0.0	0.0	5.3
Sources: Sources: U.S. Census Bureau 2015e, 2015f, 2015g, EPA 2016c.								
^a The block group is within 1 mile of the LNG Terminal site and pipeline facilities.								
^b About 3.7 percent reported their race as "Some other race alone."								

4.9.10.1 LNG Terminal

Three of the four block groups near the LNG Terminal site have minority populations greater than the general EPA guideline of 50 percent, comprised predominately of Hispanic or Latino people. Additionally, all four block groups have poverty rates that exceed 20 percent, indicating that these are low-income communities. According to the EPA guidelines stated above, these are environmental justice populations.

The FERC and RG Developers have made documents and notices about the Project available to the public, and FERC held public scoping and comment meetings, as described in section 1.3, where materials were provided in both English and Spanish to accommodate the local Hispanic or Latino population. In addition, during the public scoping and comment meetings in Port Isabel, both English and Spanish-speakers were present to converse one-on-one with stakeholders in attendance. Further, RG Developers made Project information available to the public via an internet website (www.riograndelng.com), phone hotline, and via community and stakeholder meetings in the Project area. RG Developers used the FERC's Pre-filing Process (see section 1.3). One of the major goals of this process is to increase public awareness and encourage public input regarding every aspect of a project (e.g., design, siting, routing, environmental concerns and impacts) before an application is filed. As part of this process, FERC staff participated in RG Developers' open houses and hosted FERC scoping sessions to receive input from the public about the Project. Interested parties have had opportunities to participate in the NEPA review process. This included the opportunity to participate in the public scoping meetings within the Project area to identify concerns and issues that should be covered in the EIS, and the opportunity to submit written comments about the Project to the

FERC, and the opportunity to review the draft EIS and provide comments directly to the FERC staff in person (during scheduled comment sessions) or in writing via mail or internet.

Contractors working on the Project would be required to comply with applicable equal opportunity and non-discrimination laws and policies. The criteria for all positions would be based upon qualifications and in accordance with applicable, federal, state, and local employment laws and policies. The impacts of constructing and operating the LNG Terminal on the natural and human environments are identified and discussed throughout section 4.0 of this document. The nearest residential areas are about 2.2 miles from the proposed LNG Terminal site. Potential pollution emissions from the LNG Terminal site, when considered with background concentrations, would be below the National Ambient Air Quality Standards (NAAQS), which are designated to protect public health. Therefore, the Project would not have significant adverse air quality impacts on the low-income or minority populations in the Project area. Air quality impacts are discussed in more detail within section 4.11.1.

Area residents may be impacted by traffic delays during construction on SH-48. However, as shown in the traffic analysis (see section 4.9.8), impacts would be minor and short-term, and RG LNG has committed to implementing mitigation measures to alleviate any potential road congestion during peak construction months (see section 4.9.8). Another potential impact to area residents pertains to subsistence fishing that could occur along the BSC. About 1.5 miles of the 17-mile-long shoreline of the channel would be developed for the LNG Terminal site. However, fishing opportunities would still exist along the remainder of the undeveloped channel shoreline, as well as in nearby public areas, including the Zapata boat launch and pier over San Martin Lake and the south end of Bahia Grande. Also, as discussed above RG Developers, in coordination with relevant agencies, are exploring the potential to provide a parking and fishing area on the western bank of the Bahia Grande Channel to compensate for the lost fishing area near the LNG Terminal.

If all of the peak non-local construction workers and their families including school-aged children, temporarily relocated to Cameron County, this would result in an increase to the existing student enrollment by 4.9 percent and would change the student-to-teacher ratio from 15.4 to 16.1 students per teacher. This increase could result in a minor, temporary impact on public schools in the LNG Terminal affected area, and a minor to moderate impact on public schools in Cameron County. However, these impacts could be mitigated, in part or whole, by using the increased tax revenues generated from construction of the Project to hire additional teachers during the construction period.

The LNG Terminal site was chosen to be at least 1.5 miles from populated areas. Furthermore, the LNG Terminal is expected to generate economic benefits to local residences by stimulating economic growth and employment (see section 4.9.2.1) and by increasing the local tax base (see section 4.9.5), which may in turn benefit public services. There would be minor and temporary traffic delays and potential impacts on public schools during construction, but these impacts would apply to everyone and not be focused on or targeted to any particular demographic group. We conclude that the LNG Terminal would not have disproportionate adverse effects on minority and low-income residents in the area.

4.9.10.2 Pipeline Facilities

Similar to the block groups surrounding the LNG Terminal site, all block groups and counties near the pipeline facilities, with the exception of two block groups (block group 1, tract 123.05 and block group 4, tract 101) in Cameron County, have predominantly Hispanic or Latino minority populations greater than the general EPA guideline of 50 percent. Also, the majority of the block groups have poverty rates higher than 20 percent, indicating that they are low-income communities. All five counties in the study area have higher poverty rates than the State of Texas overall.

The entire Header System and the majority of the Pipeline System are routed through agricultural land or grassland with few residences, and no existing residences are located closer than 50 feet from the pipeline right-of-way. As described above, FERC and RG Developers have made documents and notices about the Project available to the public. The impacts of constructing and operating the pipeline facilities on the natural and human environments are identified and discussed throughout section 4 of this document. Aside from temporary, minor traffic delays during peak construction times, the pipeline facilities are not expected to have disproportionate, adverse effects on minority and low-income residents in the area. Overall, construction of the Rio Grande LNG Project would result in temporary, minor to moderate impacts on socioeconomic factors. Although the increase in construction activities and workers would result in an overall increase in roadway traffic, and possibly school-aged children, in the area surrounding the LNG Terminal, these increases would be within planned and sustainable levels of usage on roads and local schools. Similarly, operation of the Project would result in mostly minor, but permanent, impacts on socioeconomic factors. However, the introduction of increased tax revenues from the Project would result in monetary benefits for the affected counties. As the number of non-local workers and family members would decrease as operation of the LNG Terminal progresses, any increase in usage of local services that may have resulted from the presence of the construction workforce would return to near pre-construction levels.

4.10 CULTURAL RESOURCES

Section 106 of the NHPA requires the FERC to take into account the effects of its undertakings on properties listed, or eligible for listing, on the NRHP, and to afford the ACHP an opportunity to comment. RG Developers, as non-federal parties, are assisting the FERC in meeting our obligations under Section 106 by preparing the necessary information, analyses, and recommendations, as authorized by 36 CFR 800.2(a)(3). Section 800.10 of 36 CFR 800 provides special requirements for protecting National Historic Landmarks.

Construction and operation of the Rio Grande LNG Project could have the potential to affect historic properties (i.e., cultural resources listed, or eligible for listing, on the NRHP). Cultural resources include archaeological sites, districts, buildings, structures, and objects that are at least 50 years old, as well as locations with traditional value to Native Americans or other groups. Historic properties are cultural resources that possess one or more criteria specified in 36 CFR 60.4, and generally must possess integrity of location, design, setting, workmanship, feeling, and association.

Table 4.11.1-3 Major Stationary Source and Prevention of Significant Deterioration Emission Thresholds		
Air Pollutant	Major Stationary Source Threshold (tpy)	PSD Significant Emission Rates (tpy)
NO _x	250	40
CO	250	100
VOCs	250	40
PM	250	25
PM ₁₀	250	15
PM _{2.5}	250	10
SO ₂	250	40
GHG (as CO ₂ e)	75,000	N/A

The aggregated emissions of the LNG Terminal and Compressor Station 3 would exceed PSD major source thresholds for NO_x, CO, PM_{2.5}, PM₁₀, SO₂, and GHG; thus, RG Developers would be required to obtain a PSD major source permit. RG Developers submitted a PSD Air Permit Application⁴¹ for the LNG Terminal and Compressor Station 3 to the TCEQ in May 2016; revised applications were submitted on November 30, 2016, and March 21, 2017, and the TCEQ issued an Order granting the PSD permit on December 17, 2018. Compressor Stations 1 and 2 and the booster stations would all require minor source permits, which were submitted to the TCEQ on March 24, 2017, and were approved in June 2017. RB Pipeline also obtained a minor source Permit by Rule for Compressor Station 3, so that it has a permit addressing only those emissions sources for which it is responsible.

Once a facility is subject to PSD, the following requirements apply:

- installation of Best Available Control Technology (BACT);
- air quality monitoring and modeling analyses to ensure that a Project's incremental increase of emissions would not cause or contribute to a violation of any NAAQS or PSD air quality increment;
- notification to the federal land manager of nearby Class I areas and modeling if applicable;

⁴¹ RG LNG's PSD Air Permit Applications are available on FERC's eLibrary website, located at <http://www.ferc.gov/docs-filing/elibrary.asp>, by searching Docket Number CP16-454 or CP16-455 and accession numbers 20170403-5621 and 20170407-5193.

Table 4.11.1-7 Summary of Estimated Emissions from Routine Operation of the LNG Terminal and Compressor Station 3 (tpy) ^{a,b}														
Equipment	NO _x	CO	SO ₂	H ₂ SO ₄	PM ₁₀	PM _{2.5}	VOC	HAPs					CO ₂ e	
								Formal- dehyde	Benzene	Toluene	Ethyl- benzene	Xylene		Total HAPs
LNG TERMINAL														
Stationary Emissions Sources from the LNG Terminal														
Gas turbines (12)	1,702.9	2,628.0	1.7	0.1	367.9	367.9	94.6	36.1	0.6	6.6	1.6	3.3	50.8	6,080,096.0
Thermal oxidizers (6)	213.2	149.2	28.2	2.2	13.5	13.5	9.8	0.1	<0.1	0.0	<0.1	0.0	3.3	1,924,414.0
Ground flare system (2)	14.0	120.0	<0.1	<0.1	0.0	0.0	102.5	0.0	0.0	0.0	0.0	0.0	0.0	30,446.0
Ground flare system (use during maintenance / start-up / shutdown)	114.0	228.0	0.3	0.0	0.0	0.0	390.0	0.0	0.0	0.0	0.0	0.0	0.0	102,662.0
Essential generators (6)	12.7	7.0	<0.1	-	0.4	0.4	-	<0.1	<0.1	<0.1	0.0	<0.1	<0.1	1,428.0
Emergency firewater pumps (2)	0.7	0.4	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	0.0	<0.1	<0.1	76.0
LNG tank and BOG low-pressure vent with ignition package	1.1	9.4	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0	4,650.0
Fugitives	-	-	-	-	-	-	3.1	0.0	<0.1	<0.1	<0.1	<0.1	0.1	5,626.0
Subtotal	2,058.6	3,142.0	30.2	2.3	381.8	381.8	604.4	36.2	0.6	6.6	1.6	3.3	54.2	8,149,398.0
Mobile Emissions Sources from the LNG Terminal														
Worker commute ^c	<0.1	0.3	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	47.0
Truck LNG distribution and NGL export ^c	1.6	0.7	<0.1	-	0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1,287.0
LNG carriers and tugboats ^d	927.3	88.0	13.9	-	28.5	27.7	38.5	1.7	0.2	<0.1	<0.1	0.1	5.7	44,034.0

Table 4.11.1-7 (continued)
Summary of Estimated Emissions from Routine Operation of the LNG Terminal and Compressor Station 3 (tpy)^{a,b}

Equipment	NO _x	CO	SO ₂	H ₂ SO ₄	PM ₁₀	PM _{2.5}	VOC	HAPs						CO ₂ e	
								Formaldehyde	Benzene	Toluene	Ethylbenzene	Xylene	Total HAPs		
Subtotal	928.9	89.0	13.9	-	28.6	27.8	38.6	1.7	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	45,368.0
LNG Terminal Total	2,987.5	3,231.0	44.1	2.3	410.4	409.6	643.0	37.9	0.8	6.6	1.6	3.4	59.9	8,194,766.0	
COMPRESSOR STATION 3															
Backup generators (2)	0.1	0.3	0.0	0.0	0.0	0.0	0.1	<0.1	<0.1	<0.1	0.0	0.0	<0.1	<0.1	45.0
Condensate tank (1)	-	-	-	-	-	-	3.7	0.0	<0.1	<0.1	<0.1	<0.1	0.2	0.2	52.0
Pigging activities	-	-	-	-	-	-	0.2	0.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	392.0
Fugitives ^e	-	-	-	-	-	-	0.7	0.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	63.0
Subtotal	0.1	0.3	0.0	0.0	0.0	0.0	4.7	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.3	552.0
Total	2,987.6	3,231.3	44.1	2.3	410.4	409.6	647.7	38.0	0.8	6.6	1.6	3.4	60.2	60.2	8,195,318.0

^a The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.^b Project estimates are for the LNG Terminal and Compressor Station 3 after all stages of construction are completed. Estimates are for routine operation.^c Speciated HAPs were not provided by RG LNG for worker commutes, or truck LNG distribution and NGL export for the LNG Terminal. Because total HAPs for these sources are <0.1 tpy, a conservative assumption that each individual HAP would be emitted at a rate of <0.1 tpy was included.^d HAPs were not estimated by RG LNG for LNG carrier and tugboat emissions; however, they were estimated using emission factors for commercial marine vessels identified by the EPA in the 2014 National Emissions Inventory.^e Speciated HAPs were not provided by RG LNG for fugitive compressor station emissions; the emissions were estimated based on the ratio of individual HAP weight percentage to the total VOC weight percentage for the gas analysis for the King Ranch Gas Plant provided by RG LNG.

Ambient Impacts

Several public scoping comments expressed concern regarding the dispersion of pollutants during operation of the LNG Terminal, and requested that RG Developers mitigate potential impacts. RG Developers conducted a PSD Screening Analysis, NAAQS Analysis, and PSD Increment Analysis for stationary sources at the LNG Terminal and Compressor Station 3 in accordance with the TCEQ's permitting requirements. In addition to the modeling required by the TCEQ, FERC requested that RG Developers conduct the requisite modeling for the LNG Terminal to include the mobile LNG carrier and support vessel emissions in order to fully assess the impacts of the LNG Terminal operations. The modeling presented herein includes the mobile LNG carriers and support vessels. The PSD Screening Analysis included a Significance Analysis, Area of Impact Analysis, and Pre-construction Monitoring Analysis. The Significance Analysis considers the emissions associated with only the proposed LNG Terminal, LNG mobile emissions, and Compressor Station 3 to determine if operation of these facilities would have a significant impact on the surrounding area. The modeled ground-level concentrations are compared to the corresponding significant impact levels (SIL), also known as modeling significance levels, to determine if any predicted concentrations at any receptor locations would be "significant." If the Significance Analysis reveals that modeled ground-level concentrations for a particular pollutant and averaging period are greater than the applicable SIL, a full impact analysis, which considers emissions from regional sources within the Area of Impact Analysis, is performed at the significant receptors. Air quality models evaluated pollutant concentrations from the facility fenceline; therefore, the recreation areas near the LNG Terminal are included in the assessment.

The Area of Impact Analysis is defined as the area in which a particular pollutant and averaging time are greater than the applicable SIL. If the predicted Significance Analysis impacts for a particular pollutant are below the applicable SIL(s), then no further analyses (e.g., NAAQS Analysis and PSD Increment Analysis) are required for that pollutant. Results from the significance analysis also dictate if pre-construction ambient monitoring is required.

In accordance with the modeling requirements outlined above, RG Developers performed a PSD Significance Analyses for those pollutants that exceeded the PSD significant emission rates. These included NO₂, CO, PM₁₀, PM_{2.5}, VOCs, and CO₂e. The results of these analyses for stationary sources are summarized in table 4.11.1-8, along with the associated SIL for each pollutant. As stated above, FERC requested that RG Developers conduct modeling to include the mobile LNG carrier and support vessel emissions; the results of the PSD Significance Analysis for stationary and mobile sources are presented in table 4.11.1-9.

Table 4.11.1-8 Summary of Air Dispersion Modeling of Stationary Sources at the Rio Grande LNG Terminal, Significant Impact Levels for Air Quality Impacts in Class II Areas				
Air Pollutant	Averaging Period	Modeled Impact ($\mu\text{g}/\text{m}^3$)^a	SIL ($\mu\text{g}/\text{m}^3$)	Full Impact Analysis Required? (Yes / No)
NO ₂	1-hour	13.89	7.5	Yes
	Annual	1.2	1	Yes
CO	1-hour	364.6	2,000	No
	8-hour	228.8	500	No
PM _{2.5}	24-hour	1.05	1.2	No
	Annual	0.26	0.3	No
PM ₁₀	24-hour	1.05	5	No
SO ₂	1-hour	1.53	7.8	No
	24-hour	0.38	5	No
	Annual	0.09	1	No
^a Modeled impacts include the maximum predicted ground-level concentration for stationary sources only as required by the TCEQ, as included in RG LNG's air quality analysis modeling report.				

Table 4.11.1-9 Summary of Air Dispersion Modeling of Stationary and Mobile Sources at the Rio Grande LNG Terminal, Significant Impact Levels for Air Quality Impacts in Class II Areas				
Air Pollutant	Averaging Period	Modeled Impact ($\mu\text{g}/\text{m}^3$)^a	SIL ($\mu\text{g}/\text{m}^3$)	SIL Exceedance (Yes / No)
NO ₂	1-hour	212.42	7.5	Yes
	Annual	4.03	1	Yes
CO	1- hour	658.8	2,000	No
	8- hour	236.2	500	No
PM _{2.5}	24- hour	2.59	1.2	Yes
	Annual	0.30	0.3	Yes
PM ₁₀	24- hour	3.24	5	No
SO ₂	1- hour	3.85	7.8	No
	24- hour	1.11	5	No
	Annual	0.11	1	No
^a Modeled impacts include stationary sources and LNG carriers at the LNG Terminal.				

The results of RG Developers' PSD Significance Analyses conducted for the TCEQ indicate that the associated emissions of NO₂ for stationary sources (1-hr and annual) would exceed the SIL. Because the results of RG Developers' PSD Significance Analyses indicated an exceedance of the SIL for NO₂ a NAAQS analysis was required by the TCEQ for each averaging period. A cumulative modeling assessment of NO₂ emissions of nearby stationary sources (within 31 miles) is also required for the Project. RG LNG completed modeling in coordination with the TCEQ and the cumulative modeling did not indicate any exceedances of relevant thresholds. The TCEQ modeling results do not include mobile sources; therefore, we conducted a cumulative analysis including the emissions for the three LNG terminals proposed along the BSC (see section 4.13.2).

In the event that a potential NAAQS violation is identified, a source is not considered to have caused or contributed to the violation if its own impact from the modeling significance analysis is not significant (e.g., modeled impact is less than the SIL) at the violating receptor at the time of the predicted violation. If no simultaneous exceedance of the SIL and the NAAQS is found in this process, the modeling analysis demonstrates that the proposed LNG Terminal would not cause or contribute to the potential NAAQS exceedance.

In addition to NO₂, the analysis of air dispersion modeling for stationary sources and LNG carriers indicated that emissions of PM_{2.5} would meet or exceed the SIL. Table 4.11.1-10 shows the results of this NAAQS assessment for stationary and mobile (LNG carrier) sources for pollutants with a SIL exceedance (see tables 4.11.1-8 and 4.11.1-9). The modeled concentrations at the LNG Terminal and mobile sources with the inclusion of background concentrations would not exceed the NAAQS.

Because the emissions from stationary and mobile sources would not exceed the NAAQS, the results of the NAAQS analysis required by the TCEQ (which only includes stationary sources at the LNG Terminal site, resulting in lower emissions estimates, and only addresses NO₂ emissions) are not included herein. Therefore, we conclude that the LNG Terminal and Compressor Station 3 would not cause or significantly contribute to an exceedance of the NAAQS.

Table 4.11.1-10 Summary of National Ambient Air Quality Standards Full Impact Analysis						
Air Pollutant	Averaging Period	Maximum Impact (µg/m³)^a	Background + Modeled Impact (µg/m³)^{a,b}	SIL (ug/m³)	NAAQS (µg/m³)	NAAQS Exceedance? (Yes / No)
NO ₂	1-hour	136.5	171.8	7.5	188	No
	Annual	4.03	7.83	1	100	No
PM _{2.5}	24-hour	1.98	27.68	1.2	35	No
	Annual	0.30	9.80	0.3	12	No
^a Modeled impacts include stationary sources and LNG carriers at the LNG Terminal site. The pollutants included are those that exceed the SIL as presented in tables 4.11.1-8 and 4.11.1-9.						
^b Background concentrations based upon available background levels presented in table 4.11.1-2.						

Secondary air quality standards are set under the CAA for the protection of public welfare, including protection against decreased visibility and damage to animals and vegetation, including crops. The NAAQS analysis demonstrated that the LNG Terminal would comply with applicable secondary NAAQS; therefore, any impacts on vegetation, animals, and other public welfare concerns would not be significant. In Texas, if a facility complies with visibility and opacity requirements specified in 30 TAC Chapter 111, no additional visibility impact analyses are required. RG LNG would comply with visibility and opacity requirements specified in 30 TAC Chapter 111.

Given the close proximity of the LNG Terminal site to the Palo Alto Battlefield, about 14.0 miles west of the LNG Terminal site, and Padre Island National Seashore, about 36.0 miles northeast of the LNG Terminal site, RG LNG prepared an assessment demonstrating maximum modeled ground-level concentrations for pollutants in relation to the NAAQS at the Palo Alto Battlefield at the request of the NPS. The results of this comparison are provided in table 4.11.1-11. Based on the NAAQS analysis in table 4.11.1-10 above, it is anticipated that no NAAQS exceedance would occur at Padre Island National Seashore from operation of the Project.

Table 4.11.1-11 Summary of NAAQS Full Impact Analysis, Palo Alto Battlefield Receptors					
Air Pollutant	Averaging Period	Maximum Modeled Result ($\mu\text{g}/\text{m}^3$)^a	Background Value ($\mu\text{g}/\text{m}^3$)^b	Modeled Result + background concentration ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)
NO ₂	1-hr	5.16	35.3	40.46	188
	Annual	0.05	3.8	3.85	100
CO	1-hr	41.77	1,257.6	1,299.37	40,000
	8-hr	13.08	800.3	813.38	10,000
PM _{2.5}	24-hr	0.09	25.7	25.79	35
	Annual	0.01	9.5	9.51	12
PM ₁₀	24-hr	0.66	49.0	49.66	150
SO ₂	1-hr	0.24	13.2	13.44	196
	24-hr	0.06	3.7	3.76	365
	Annual	0.002	0.08	0.08	80
^a Modeled impacts include stationary sources and LNG carriers at the LNG Terminal site.					
^b Background concentrations based upon available background levels presented in table 4.11.1-2.					

An additional visibility screening model was prepared using VISCREEN to assess potential visibility impacts on the Palo Alto Battlefield, since sources of air pollution can cause visible plumes if PM and NO_x emissions are large enough. The VISCREEN model was run using site-specific meteorological data and background visibility conditions from the Galveston

Airport in Galveston County due to a similar location on the coast of the Gulf of Mexico with nearby industrial sites.

The results of the model are compared to criteria established for Class I areas (see section 4.11.1.2) to assess the visibility of a plume due to contrast with the viewing background. The results of the VISCREEN analysis indicate that Class I area thresholds would not be exceeded at the Palo Alto Battlefield during the day when the park is open for visitors.

The State of Texas also requires a State Property Line Analysis for major sources and listed minor sources to demonstrate compliance with state standards for net ground-level concentrations of SO₂. Results of this analysis are provided in table 4.11.1-12, and show that operation of the Project would not result in the exceedance of any relevant standards. Public scoping comments and comments on the draft EIS expressed concern regarding impacts of operational emissions from the LNG Terminal on public health. The State of Texas requires a State Health Effects air quality analysis comparing predicted emissions of non-criteria pollutants with effects screening levels, which are used to evaluate potential effects as a result of exposure to air emissions. The pollutants assessed for the Project include benzene (a VOC), hexane, heptane, iso-butane, and n-butane. The results of RG LNG's State Health Effects modeling evaluation indicate that the Project emissions are below applicable effects screening levels, and therefore adverse health effects are not expected.

Table 4.11.1-12 SO₂ NAAQS Analysis Modeling Results for the Rio Grande LNG Terminal		
Averaging Period	Maximum Concentration (µg/m³)^a	State Property Line Standard (µg/m³)
30-minute SO ₂	5.1	1,021
1-hour H ₂ SO ₄	0.16	50
24-hour H ₂ SO ₄	0.04	15
^a Modeled results include stationary sources and LNG carriers.		

Regional Ozone Impacts

Because the Rio Grande LNG Terminal is a major source of NO_x and VOC emissions, which are precursors to ozone, the potential ozone impact of the LNG Terminal and Compressor Station 3 was analyzed. RG LNG conducted photochemical modeling to determine the potential 8-hour ozone impact from LNG Terminal operations using the Comprehensive Air Quality Model with Extensions (CAMx) in accordance with the EPA's July 2015 Draft Single Source Ozone Guidance. RG LNG also assessed potential ozone impacts in accordance with the two-step screening process established by the TCEQ.

The CAMx model was run using a "base case" scenario of emissions; a "future year" scenario that would be representative of baseline conditions in Year 7, the year before the LNG Terminal would be fully operational; and an emissions scenario that included the Project (added to the future year scenario), thus allowing for a comparison of ozone levels before and after the

Project is permitted and at full build-out. In accordance with the TCEQ screening process, RG LNG used national emissions inventory data to determine the ratio of NO_x to VOC in Cameron County, and found that the ambient air surrounding the LNG Terminal is NO_x limited for creation of ozone. Based on TCEQ guidance, RG LNG performed NO_x modeling to estimate the maximum predicted 8-hour concentration of ozone resulting from Project operations and found that the maximum 8-hour ozone impacts of the LNG Terminal and Compressor Station 3 were estimated to be 2.3 parts per billion (ppb) of ozone, which, when considered with the background ozone concentration of 57 ppb, would not result in an exceedance of 8-hour ozone standard of 70 ppb. Since issuance of the draft EIS, and as identified in a comment issued by the Sierra Club, the TCEQ issued a Construction Permit Source Analysis & Technical Review for the Project as part of its review and issuance of air quality permits. In that analysis, the TCEQ conducted a conservative analysis of ozone levels based on guidance provided by the EPA Region 6. Based on the revised analysis by the TCEQ, the 8-hour maximum predicted increase of ozone would be 11.6 ppb which, when considered with the background ozone concentration of 57 ppb, would not result in an exceedance of the 8-hour ozone standard. Cameron County is currently in attainment for the ozone standard, and the Project is not expected to result a violation of the ozone standard or re-designation.

Staged Emissions Impacts

As described in section 2.3, the Project has been proposed in six staged construction phases where the LNG Terminal site would be developed over the course of about 7 years, with the first LNG train becoming operational in Year 4 of construction. Therefore, construction, commissioning and start-up, and operations would take place simultaneously and result in concurrent emissions of air pollutants. Using the air emissions estimates provided by RG Developers for routine operation of all six LNG Trains and Compressor Station 3 compressor units, we have estimated the staged operational emissions during each year that commissioning and construction would also take place. Table 4.11.1-13 summarizes the combined construction, commissioning, and operational emissions for the Rio Grande LNG Terminal, by year.

Based on the schedule provided by RG Developers, the emissions for Years 1 through 3 would be construction only with commissioning activities for the first LNG train beginning in Year 4. Each subsequent year (Years 5 through 7) results in emissions for construction, and commissioning and start-up, of each stage. Concurrent construction and commissioning and start-up emissions would be greater than full build-out operational emissions of NO_x and CO in Year 7, during which construction would be ongoing for Stage 6, while Stages 1 through 5 would be operational beginning in the first quarter of the year. Similarly, concurrent VOC emissions, primarily due to commissioning and start-up emissions, would be greatest during Years 4 through 7. These concurrent emissions would temporarily impact local air quality during the staged construction, commissioning and start-up, and operations of the LNG Terminal, and could result in exceedances of the NAAQS in the immediate vicinity of the LNG Terminal during these construction years. However, these exceedances would not be persistent at any one time during these years due to the dynamic and fluctuating nature of construction activities within a day, week, or month. Further, construction emissions would be highly localized, and the nearest residential areas are about 2.2 miles from the LNG Terminal site. Because pollutant concentrations would decrease with distance from the LNG Terminal site, concurrent emissions would be unlikely to exceed the NAAQS in residential areas. Therefore, these concurrent

No NSAs are within 1 mile of the Donna Drain HDD (MP 86.5), unnamed waterbody SS-T09-001 HDD (MP 130.5), Channel to San Martin Lake HDD (MP 132.9), or Channel to Bahia Grande HDD (MP 134.5). HDD construction is not expected to exceed FERC noise criteria at these locations, and no further analysis is presented. RB Pipeline has proposed the following mitigation at HDD locations that would exceed the FERC noise criterion of an L_{dn} of 55 dBA at NSAs:

- use of temporary sound barriers around the HDD workspace;
- use of sound barriers or an acoustical enclosure around the drilling mud cleaning system; and
- offering temporary housing to residents in the vicinity of HDD operation.

However, RB Pipeline has not identified the site-specific mitigation measures that would be implemented at each HDD location, and, as identified in table 4.11.2-11, noise levels from seven of the HDDs are estimated to exceed FERC's noise criterion of an L_{dn} of 55 dBA at the nearest NSAs. Therefore, **we recommend that:**

- **Prior to construction of HDDs at MPs 82.0, 92.0, 93.0, 99.8, 101.2, 102.0, and 118.7, RB Pipeline should file with the Secretary, for review and written approval by the Director of OEP, a HDD noise mitigation plan to reduce noise levels attributable to the proposed drilling operations. The noise mitigation plan should identify all reasonable measures RB Pipeline would implement to reduce noise levels attributable to the proposed drilling operations to no more than an L_{dn} of 55 dBA at NSAs, and the resulting noise levels at each NSA with mitigation.**

Aboveground Facilities

Construction of the compressor and booster stations would take place between the first quarter of Year 3 and the third quarter of Year 7. Initial construction for each compressor station is expected to take a total of about 12 months; the installation of additional compressors would transpire in stages from the fourth quarter of Year 4 through the third quarter of Year 7 in conjunction with the staged construction of the LNG Terminal. RB Pipeline has stated that construction activities would predominantly take place during the day, from 7:00 a.m. through 7:00 p.m., Mondays through Saturdays; but depending on schedule, 24-hour construction may be necessary at times.

Construction activities associated with the compressor and booster stations would involve clearing and grading associated with site preparation; materials and equipment delivery; placing fill; and construction of foundations, equipment settings, ancillary equipment, piping, and structures (see section 2.5.2.2). Similar to pipeline construction, the most prevalent sound-generating equipment and activity during construction of the compressor stations is anticipated to be the operation of internal combustion engines associated with general construction equipment. Sound levels resulting from construction would vary over time and would depend upon the number and type of equipment operating, the level of operation, and the distance between sources and receptors. RB Pipeline estimated equipment needs for construction of the

compressor stations as well as the resulting composite sound level from construction activities. Table 4.11.2-12 provides the estimated composite sound levels from construction of the compressor stations at various distances from the property boundary or right-of-way. Similar sound levels would be expected for construction of other aboveground facilities, including the booster stations and metering sites, which are not within 1 mile of any NSAs.

Table 4.11.2-12 Composite Construction Sound Estimates for Compressor Stations 1 and 2		
Distance from Right-of-Way or Property Line (feet)	Site Preparation Sound Level (dBA L_{max}^a)	Facility Construction Sound Level (dBA L_{max}^a)
50	98	89
250	84	75
500	78	69
1,000	72	63
1,500	68	59

The nearest NSA (NSA 2) to Compressor Station 1 would be about 5.5 miles away. During construction activities, the composite sound level at NSA 2 is estimated to be 42.7 L_{eq} (dBA). The current daytime sound level at this NSA is 38.3 dBA L_{eq}, and the combined ambient and construction sound levels would be 44.1 dBA, a 5.8 dB increase above ambient levels. Noise levels would be below the FERC criterion of 55 dBA. In response to concerns expressed by the NPS regarding indirect effects on the King Ranch National Historic Landmark, RB Pipeline also assessed sound level impacts on the King Ranch Visitor Center, located approximately 9.7 miles northeast of Compressor Station 1.

Using ambient sound levels measured at NSA 2, RB Pipeline determined that construction of Compressor Station 1 would not impact sound levels at the King Ranch Visitor Center. Additional detail regarding potential impacts on the King Ranch are provided in section 4.8.

The nearest NSA to the proposed site for Compressor Station 2 (NSA 2) is about 2.9 miles away. During construction activities, the composite sound level at NSA 2 is estimated to be 42.2 dBA L_{eq}. The current daytime sound level at this NSA is 63.3 dBA L_{eq}, and the combined ambient and construction sound levels would not result in an increase above ambient levels. To minimize impacts from construction sound, RB Pipeline would implement mitigation measures that may include installation of temporary acoustic barriers, limiting construction to daytime hours as feasible, and offering temporary housing to residents in the vicinity construction.

The sound levels generated by construction activities at Compressor Station 1 would increase the existing daytime noise at the nearest NSA. However, due to the predicted minor increases and temporary nature of construction, we conclude that impacts on residents and the surrounding communities would be minor during construction of the aboveground facilities.

Operation

RB Pipeline's sources of operational sound would include daily operation of the aboveground facilities. There are no NSAs within 1 mile of any of the stand-alone metering sites, and potential sound level impacts associated with the operation of these metering sites would be minor and are not expected to be perceptible at any NSAs.

Noise would be associated with the compressor stations and booster stations on a continuous basis from operation of compressors, pumps, and cooling fans. Metering equipment at the facilities is expected to be much lower in volume in comparison to operating compressors. RB Pipeline used models to calculate the potential sound level impact of both Compressor Stations 1 and 2, as well as Booster Stations 1 and 2, on nearby NSAs. Sound level data from the proposed equipment were obtained from vendor information and typical noise control applications. Table 4.11.2-13 presents the results of the modeling, along with a comparison to the existing ambient sound levels. Based on these estimates, noise generated by Compressor Station 1 and the two booster stations would not result in a perceptible increase in ambient sound levels. In addition, operation of Compressor Station 1 would not result in an increase in sound levels at the King Ranch Visitor Center. The noise generated by Compressor Station 2 would result in slight increases in ambient sound levels at NSAs 1 and 2, but the overall sound level would remain below an L_{dn} of 55 dBA.

The compressor units at Compressor Stations 1 and 2 would be housed in compressor buildings. If necessary, RB Pipeline stated that it would use noise-insulated buildings to ensure that sound attributable to the compressor stations does not exceed 55 dBA L_{dn} at the nearest NSA. In addition, RB Pipeline would use centrifugal rotating equipment, rather than reciprocating engines, to ensure that operation of the compressor and booster stations would not result in increased perceptible vibration at nearby NSAs.

Table 4.11.2-13 Composite Sound Levels at Nearby Noise Sensitive Areas from Aboveground Facilities^a					
NSA	Distance (miles) and Direction from Facility	Existing Ambient L_{dn} (dBA)	Predicted Facility Contribution L_{dn} (dBA)	Ambient + Facility L_{dn} (dBA)	Predicted Increase in Ambient Sound Level (dBA)
Compressor Station 1					
NSA 2	5.5, west	52.3	21.8	52.3	0.0
Compressor Station 2					
NSA 1	2.9, south	67.7	28.6	67.7	0.0
Booster Station 1					
NSA 1	1.7, west	67.5	26.8	67.5	0.0
Booster Station 2					
NSA 1	2.4, south	55.9	23.3	55.9	0.0
^a There are no NSAs within 1 mile of any of the stand-alone metering sites, and potential sound level impacts associated with the operation of these metering sites would be minor and are not expected to be perceptible at any NSAs.					

The results of the sound level impact analysis indicate that the sound attributable to operation of the aboveground facilities would be in compliance with the FERC sound level requirement of 55 dBA L_{dn} at the nearest NSA. We recognize, however, that actual results may be different from those obtained from modeling. Also, two compressor units at each compressor station would be installed during Stages 1 and 2 of LNG Terminal construction; one compressor unit at each compressor station would come online as each LNG train would commence service during subsequent stages of construction. The two interconnect booster stations would each include one compressor unit, installed during the first stage of construction. Therefore, to ensure that NSAs are not adversely impacted by the phased operation of the compressor stations, **we recommend that:**

- **RB Pipeline should file a noise survey with the Secretary no later than 60 days after each set of compressor units at Compressor Stations 1 and 2, and Booster Stations 1 and 2 are placed in service. If a full load condition noise survey is not possible, RB Pipeline should provide an interim survey at the maximum possible horsepower load within 60 days of placing the phased station into service and provide the full load survey within 6 months. If the noise attributable to the operation of all of the equipment at any of the facilities under interim or full horsepower load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, RB Pipeline should file a report on what additional noise controls are needed and should install the additional noise controls to meet the level within 1 year of the in-service date. RB Pipeline should confirm compliance with the above requirement by filing an additional noise survey with the Secretary no later than 60 days after it installs the additional noise controls.**

In compliance with the recommendation above, RB Pipeline would need to complete several noise surveys to ensure that the phased-in compressor units are below an L_{dn} of 55 dBA at the nearest NSAs. A total of five noise surveys would be completed each at Compressor Stations 1 and 2 as each set of compressor units are placed in-service for each stage of construction. If the noise levels reported in any of the noise surveys are over an L_{dn} of 55 dBA at the nearest NSAs, RB Pipeline would need to implement the required mitigation to reduce the noise impacts on the nearest NSAs within the time specified in the recommendation.

In addition, blowdown events would also generate noise during operation of the pipeline facilities. RB Pipeline anticipates that one planned and one unplanned blowdown event would occur annually at each compressor and booster station. Planned blowdown events can happen during commission/decommissioning of a compressor station or during maintenance. Unplanned blowdown events are necessary in the event of an emergency and could occur at any time. Pipeline blowdown events are typically infrequent and of short duration; however, the frequency and length of the blowdown events depend upon the extent of the maintenance activity or type of emergency release. RB Pipeline would install silencers on all blowdown sources to minimize sound associated with blowdowns. Based on RB Pipeline's proposed mitigation and our recommendation, noise impacts from operation of the aboveground facilities would be minor.

While construction of the Rio Grande LNG Project would result in localized minor to moderate elevated noise levels near construction areas, impacts would be limited to the construction period for the Project. During operations, noise impacts would be minor at the

aboveground facilities along the Pipeline System and at the NSAs in the vicinity of the LNG Terminal.

4.12 RELIABILITY AND SAFETY

4.12.1 LNG Terminal

4.12.1.1 LNG Facility Reliability, Safety, and Security Regulatory Oversight

LNG facilities handle flammable and sometimes toxic materials that can pose a risk to the public if not properly managed. These risks are managed by the companies owning the facilities, through selecting the site location and plant layout as well as through suitable design, engineering, construction, and operation of the LNG facilities. Multiple federal agencies share regulatory authority over the LNG facilities and the operator's approach to risk management. The safety, security, and reliability of the Rio Grande LNG Project would be regulated by the DOT, the Coast Guard, and the FERC.

In February 2004, the DOT, the Coast Guard, and the FERC entered into an Interagency Agreement to ensure greater coordination among these three agencies in addressing the full range of safety and security issues at LNG terminals and LNG marine vessel operations, and maximizing the exchange of information related to the safety and security aspects of LNG facilities and related marine operations. Under the Interagency Agreement, the FERC is the lead federal agency responsible for the preparation of the analysis required under NEPA for impacts associated with LNG terminal construction and operation. The DOT and the Coast Guard participate as cooperating agencies but remain responsible for enforcing their regulations covering LNG facility siting, design, construction, operation, and maintenance. All three agencies have some oversight and responsibility for the inspection and compliance during the LNG Terminal's operation.

The DOT establishes and has the authority to enforce the federal safety standards for the location, design, installation, construction, inspection, testing, operation, and maintenance of onshore LNG facilities under the Federal Pipeline Safety Laws (49 USC 60101 *et seq.*). The DOT's LNG safety regulations are codified in 49 CFR 193, which prescribes safety standards for LNG facilities used in the transportation of gas by pipeline that are subject to Federal Pipeline Safety Laws (49 USC 60101 *et seq.*), and 49 CFR 192. On August 31, 2018, the DOT and FERC signed a MOU regarding methods to improve coordination throughout the LNG permit application process for FERC-jurisdictional LNG facilities. In the MOU, the DOT agreed to issue a LOD stating whether a proposed LNG facility would be capable of complying with location criteria and design standards contained in Subpart B of Part 193. The Commission committed to rely upon the DOT determination in conducting its review of whether the facilities would be in the public interest. The issuance of the LOD does not abrogate the DOT's continuing authority and responsibility over a proposed project's compliance with Part 193 during construction and future operation of the facility. The DOT's conclusion on the siting and hazard analysis required by Part 193 would be based on preliminary design information which may be revised as the engineering design progresses to final design. DOT regulations also contain requirements for the design, construction, installation, inspection, testing, operation, maintenance, qualifications and training of personnel, fire protection, and security for LNG

- impact that resource within all or part of the time span encompassed by the proposed or reasonably expected construction and operation schedule of the proposed Project; and
- impact that resource within all or part of the same geographic area affected by the proposed Project. The geographic area considered varies depending on the resource being discussed, which is the general area in which the projects could contribute to cumulative impacts on that particular resource (geographic scope of analysis).

A geographic scope was identified for each specific environmental resource that would be affected by the Project, as described in table 4.13.1-1.

4.13.1 Projects and Activities Considered

With respect to past actions, CEQ guidance (2005) allows agencies to adopt a broad, aggregated approach without “delving into the historical details of individual past actions,” an approach we have taken here. The current regional landscape in south Texas, which is a mix of large tracts of open land that support ranch and cattle operations, NWRs, and an assortment of industrial facilities already sited along the BSC forms the environmental baseline described in other sections of this EIS and against which the impacts of reasonably foreseeable future actions are considered. Recently completed projects that may still be undergoing restoration or that were identified during the agency review process as projects of concern are also included in the cumulative impacts assessment.

Reasonably foreseeable projects that might cause cumulative impacts in combination with the proposed Project includes projects that are under construction, approved, proposed, or planned. For FERC-regulated projects, proposed projects are those for which the proponent has submitted a formal application to the FERC, and planned projects are projects that are either in pre-filing or have been announced, but have not been officially proposed. Planned projects also include projects not under the FERC’s jurisdiction that have been identified through publicly available information such as press releases, internet searches, and the applicants’ communications with local agencies.

Table 4.13.1-1 Geographic Scope for Cumulative Impact Analysis	
Environmental Resource	Geographic Scope
Geologic Resources and Soils	Area affected by and adjacent to the Project - direct effects of geologic hazards would be highly localized and limited primarily to the period of construction; cumulative impacts from geologic hazard impacts would only occur if other projects are constructed at the same time and place as the proposed facilities.
Water Resources (Groundwater, Surface Water, and Wetlands)	HUC-12 subwatershed - impacts on groundwater, surface waters and wetlands can result in downstream contamination or turbidity; therefore, the Project could result in additional incremental impacts on waters further downstream.
Vegetation and Wildlife	HUC-12 subwatershed – impacts on vegetation within the HUC-12 subwatershed could contribute to impacts on vegetation communities and wildlife habitat within the watershed.
Aquatic Resources	HUC-12 subwatershed – impacts on surface water within the HUC-12 subwatershed could contribute to downstream impacts on aquatic organisms and their habitats.
Threatened and Endangered Species	HUC-12 subwatershed – impacts within the HUC-12 subwatershed could contribute to impacts on vegetation communities and threatened and endangered species habitat within the watershed. For marine species, impacts on marine/estuarine waterbodies in the HUC-12 subwatershed and established shipping channels used by LNG carriers are also within the geographic scope. Due to the diversity in life history and range of threatened and endangered species potentially affected by the Rio Grande LNG Project, cumulative impacts were independently reviewed for each species or group of species.
Land Use and Recreation	Cameron County; and land within 1 mile of the Pipeline System - to encompass any large areas with specialized or recreational uses.
Visual Resources	For aboveground facilities, distance that the tallest feature at the planned facility would be visible from neighboring communities (about 12 miles). For the Pipeline System, a 0.25-mile buffer and existing visual access points (e.g., road crossings).
Socioeconomics	Affected counties and municipalities.
Environmental Justice	Census tracts within affected counties.
Cultural Resources	Overlapping resource impacts. Direct impacts on cultural resources are highly localized; thus, cumulative impacts would only occur if other projects are constructed in the same place or impact the same historic properties impacted by the proposed Project.
Air Quality – Construction	Within 0.5 mile of the proposed pipeline facilities and within 1.0 mile of the LNG Terminal, because construction emissions are highly localized.
Air Quality – Operations	Within 31 miles of the proposed LNG Terminal, interconnect booster stations, and compressor stations.
Noise - Construction	Within 0.25 mile from pipeline or aboveground facilities, 0.5 mile from HDD entry and exit locations, and overlapping NSAs that would be affected by construction of the LNG Terminal.
Noise - Operations	Other facilities that would impact any NSA within 1 mile of a noise emitting permanent aboveground facility, or projects within a 2-mile radius of the LNG Terminal site or potential overlapping impacts on nearby NSAs.

Table 4.13.1-2 lists the projects and activities that we considered in this cumulative impact analysis, including the location, distance from the project, project timeframe, and resource(s) potentially cumulatively affected in conjunction with the Rio Grande LNG Project. Project locations are depicted in figures 4.13.1-1 and 4.13.1-2. Descriptions of potential cumulative impacts by resource category are discussed in section 4.13.2. For some projects we were unable to obtain quantitative information (e.g., project planning stage, size, etc.), in these cases our analysis relies on qualitative information for the project.

We received comments on the draft EIS that identified additional projects for consideration in our cumulative analysis. These include the Palmas Altas Wind Farm and an associated transmission line, a steel mill, an oil pipeline and export terminal, and an airport terminal expansion project. These projects have been added to table 4.13.1-2 and are described further below.

4.13.1.1 Future LNG Liquefaction Projects

Annova LNG Brownsville Project

Annova LNG has proposed a liquefaction and LNG export terminal along the BSC in Cameron County. The Annova LNG Brownsville Project Annova LNG Project would affect about 491 acres of land about 0.3 mile south of the Rio Grande LNG Terminal (see figure 3.3.2-1) and would include six LNG trains with an overall LNG capacity of about 6 MTPA, two 160,000 m³ LNG storage tanks, and a marine berth to accommodate one LNG carrier. A new, intrastate natural gas header pipeline would deliver domestic feed gas from the Isla Grande pipeline system to the proposed Annova LNG Terminal.

The FERC approved Annova LNG's request to enter the FERC pre-filing process on March 27, 2015, under Docket No. PF15-15; its formal application was filed with the FERC on July 13, 2016, under Docket No. CP16-480. Annova LNG initially anticipated that construction of the project would begin in 2018, and would have an in-service date of 2021. However, this timeline no longer appears feasible. Other non-jurisdictional facilities for the Annova LNG Project would include a natural gas interconnect facility within the terminal site, electricity to be provided by South Texas Electric Cooperative, and potable water to be provided by BND through planned expansions to serve various customers of the Port of Brownsville (including RG Developers). These non-jurisdictional facilities are discussed below (section 4.13.1.2).

Barca and Eos LNG Project

Barca and Eos were planning to develop a liquefaction and LNG export facility at the Port of Brownsville, about 2 miles west of the proposed Rio Grande LNG Terminal site. While the DOE authorized Eos and Barca to export to FTA nations, the applicants have not requested to participate in the FERC pre-filing process. Further, the lease option with BND has expired. As such, we conclude that the project is highly speculative, at best, and have excluded it from our cumulative impact analysis, as indicated in table 4.13.1-2.

Environmental Justice

The geographic scope for the assessment of cumulative impacts on socioeconomic indicators was defined as the counties in the Project areas. However, based on our analysis in section 4.9.10, we found that minority populations and low-income communities, as defined per EPA guidelines, are present within a 2-mile radius of the Project facilities. Therefore, sensitive populations are present within the geographic scope and may be subject to cumulative impacts from the Rio Grande LNG Project and other projects.

LNG Terminal

As discussed in section 4.9, the nearest residential areas are about 2.2 miles from the proposed LNG Terminal site and are within a census tract that contains sensitive populations. During the pre-filing process and application review, FERC and RG Developers have made documents and notices about the Project available to the public. In addition, FERC provided materials in both English and Spanish to accommodate the local Hispanic or Latino population during public scoping and comment meetings. During the public scoping and comment meetings in Port Isabel for the Rio Grande LNG, Annova LNG, and Texas LNG Projects, both English and Spanish-speakers were present to converse one-on-one with stakeholders in attendance. Impacts on the human environment from construction of the Rio Grande LNG Terminal would consist of traffic delays, increased enrollment at public schools, and displacement of recreational fishermen and other visitors to the public use areas near the LNG Terminal site. These impacts would be minor and short-term, as described above.

Several of the projects listed in table 4.13.1-2 could contribute to potential impacts on minority populations and low-income communities, most notably the Annova LNG and Texas LNG Projects and the yet to be constructed Port of Brownsville Projects, given their size and potential cumulative impacts on socioeconomics and air quality. Contractors working on projects within the geographic scope would be required to comply with applicable equal opportunity and non-discrimination laws and policies. The criteria for all positions would be based upon qualifications and in accordance with applicable, federal, state, and local employment laws and policies. Like the Rio Grande LNG Terminal, tax revenues generated from construction of these projects could be used to offset impacts on public schools and infrastructure. These impacts would apply to everyone and not be focused on or targeted to any particular demographic group.

Potential air pollutant emissions from operation of the Rio Grande LNG Terminal would be below the thresholds for unhealthy air quality over Project-area counties, which have been established for criteria pollutants. Other projects that are permitted and built would be held to the same air quality standards. Further, the State of Texas requires a State Health Effects air quality analysis comparing predicted emissions with effects screening levels, which are used to evaluate potential effects as a result of exposure to air emissions of non-criteria pollutants. The results of RG LNG's State Health Effects modeling evaluation indicate that the Project emissions are below applicable effects screening levels, and therefore adverse health effects are not expected. Cumulative impacts on air quality are discussed in section 4.13.2.9. Therefore, the Rio Grande LNG Terminal's contribution to cumulative impacts on the low-income or minority

populations in the Project area would be limited to minor and temporary traffic delays and potential impacts on public schools during construction.

Pipeline Facilities

As noted in section 4.9.2, all of the affected counties have higher poverty rates than the State of Texas, and therefore all of the projects listed in table 4.13.1-2 could contribute to potential impacts on these populations. Based on the generally rural setting across the affected counties, impacts from the other projects on communities would include temporary impacts on road traffic during the respective construction periods. The Pipeline System would cross predominantly undeveloped land with few residences, and no existing residences are closer than 50 feet from the proposed pipeline right-of-way and would have similar impacts on low-income residents in the counties crossed by the Project. These impacts would apply to everyone and not be focused on or targeted to any particular demographic group.

As discussed above, minority populations are also present in Cameron County. Most notably would be projects with aboveground facilities, including the three LNG terminals and RB Pipeline's proposed Compressor Station 3. Proponents of the proposed Annova and Texas LNG Projects have designed each project to minimize impacts on local populations by collocating new facilities with existing facilities or rights-of-way, siting projects on lands identified for industrial/commercial development or in remote locations, and maximizing the distance to or avoiding residences where practicable. Further, as these two projects are FERC-regulated, they would be required to implement similar mitigation measures as discussed above to minimize impacts on these populations due to traffic delays and potential impacts on schools during construction. While these projects could cause impacts on minority and low-income residents, these impacts would apply to everyone and not be focused on or targeted to any particular demographic group.

Conclusion

Minor and temporary traffic delays during construction of the LNG Terminal and pipeline facilities, and potential impacts on public schools during construction of the LNG Terminal, could affect minority and low-income residents in the geographic scope. These impacts would apply to everyone and not be focused on or targeted to any particular demographic group; therefore, the Rio Grande LNG Project is not expected to contribute to cumulative disproportionate, adverse effects on minority and low-income residents in the area.

4.13.2.8 Cultural Resources

The geographic scope for cumulative impacts on cultural resources was determined to be the area directly affected by the Rio Grande LNG Terminal site and pipeline facilities. Other projects that occur within the geographic scope for cultural resources include the non-jurisdictional facilities, the Cameron and Palmas Altas Wind Farms, and the VCP (for which construction is complete). Cultural resources within 12 miles of the LNG Terminal site were also assessed for potential cumulative effects on visual resources (see section 4.13.2.6).

LNG Terminal

Direct impacts on cultural resources are highly localized; thus, cumulative impacts would only occur if other projects are constructed in the same place or impact the same historic properties affected by the proposed Project. As described in section 4.10.1, cultural resources surveys are complete for the Rio Grande LNG Terminal site, and no new archaeological resources were identified. In addition, RG Developers have developed an Unanticipated Discovery Plan, which we reviewed and found to be acceptable. The SHPO concurred with the plan on November 10, 2016. With our recommendation in section 4.10.5, and because no intact archaeological deposits or cultural materials were identified during surveys, we find that the Rio Grande LNG Terminal would not contribute to cumulative impacts on cultural resources.

Pipeline Facilities

Cumulative impacts on cultural resources would occur if the Pipeline System and another Project were to result in overlapping effects on a cultural resource. RB Pipeline has initiated consultation with the SHPO; however, all the necessary cultural resource surveys are not complete along the Pipeline System. Therefore, consultation is not complete. About 30 miles of the pipeline route would cross the King Ranch National Historic Landmark. However, once cultural resources surveys are complete, if any historic properties would be adversely affected by the Pipeline System, a treatment plan would be prepared. In addition, RG Developers have developed an Unanticipated Discovery Plan, as described above. Because RB Pipeline would be required to implement the measures in the treatment plan(s), as applicable, impacts on cultural resources would be minimized and would not contribute to significant cumulative impacts on cultural resources.

Conclusion

Construction and operation of the LNG Terminal would not contribute to cumulative impacts on cultural resources. Further, while field surveys and consultation regarding cultural resources along the Pipeline System are not complete, RB Pipeline would be required to implement the measures in the treatment plan(s) for any historic properties that would be adversely affected by the Project. Therefore, impacts on cultural resources would be minimized and would not contribute to significant cumulative impacts on cultural resources.

4.13.2.9 Air Quality and Noise

Air Quality

Construction

The geographic scope for assessment of cumulative impacts on air quality during construction of the proposed Rio Grande LNG Project is the area within 0.5 mile of the proposed pipeline facilities and within 1.0 mile of the LNG Terminal,⁸⁵ because construction emissions

⁸⁵ Although the typical construction geographic scope for air quality is 0.25 mile, we expand this on a case-by-case basis for large projects like LNG terminals.

would be highly localized (see table 4.13.2-2). The projects within the construction geographic scope that are most likely to contribute to cumulative air impacts include the Annova LNG and Texas LNG Projects, non-jurisdictional facilities associated with the Rio Grande LNG Project, and waterway improvement projects within the BSC.

LNG Terminal

Construction of the Rio Grande LNG Terminal would affect air quality due to emissions from combustion engines used to power construction equipment, vehicle emissions traveling to and from the LNG Terminal site, marine deliveries of construction materials, and fugitive dust resulting from earth-disturbing activities and equipment movement on dirt roads.

Air emissions from projects in the vicinity of the Project would be additive. Because construction emissions would be temporary and limited to the construction period, standard EPA emission thresholds do not apply. General Conformity applicability thresholds do not apply at the LNG Terminal site because the Project area is in attainment for all the NAAQS. Table 4.13.2-2 estimates the total cumulative emissions from concurrent construction of the Rio Grande LNG, Annova LNG, and Texas LNG Projects. While construction emissions estimates from non-jurisdictional projects and waterway improvement projects within the BSC are not available, based on the intermittent and short-term nature of construction, these projects would have a minor impact on cumulative air emissions when considered with the proposed LNG terminals (including the Rio Grande LNG Terminal).

Cumulative impacts from construction would be limited to the duration of the construction period. However, with other projects in the vicinity, construction of the Rio Grande LNG Project would contribute to localized elevated emissions near construction areas during the period(s) when construction of these activities would overlap. Due to the magnitude of the combined emissions, the greatest potential for cumulative impacts would be during Years 2 and 3 (see table 4.13.2-2). When compared with the EPA's most recently available national emissions inventory data, peak year (Year 3) cumulative construction emissions of NO_x, SO₂, PM₁₀, and PM_{2.5} would represent about 8.6, 61.6, 21.8, and 14.1 percent, respectively, of the 2014 inventory emissions levels.

Table 4.13.2-2 Estimated Construction Emissions for the Brownsville LNG Projects (tons per year) ^{a,b}						
Facility and Year	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}	VOC
Rio Grande LNG Terminal						
Year 1	12.0	18.6	2.0	589.4	60	0.7
Year 2	69.7	111.4	11.8	1,199.5	125.8	4.2
Year 3	127.8	174.3	23.5	1,146.6	125.8	6.4
Year 4	59.3	118.5	10.6	91.4	14.2	3.6
Year 5	45.0	106.7	8.0	56.1	9.2	2.9
Year 6	39.0	70.2	7.1	26.9	5.8	2.1
Year 7	1.2	10.4	<0.1	13.9	1.4	0.1
Year 8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Annova LNG						
Year 1	23	40	0.04	293	30	2.6
Year 2	172	220	0.3	158	25	22
Year 3	152	224	0.25	126	21	17
Year 4	131	202	0.22	65	14	13
Year 5	50	86	0.08	59	8	6
Texas LNG						
Year 1	63.4	36.5	4.3	180.7	29.2	4.1
Year 2	284.9	164.4	19.2	812.9	131.0	18.4
Year 3	397.9	229.6	26.8	1,135.3	183.0	25.7
Year 4	243.3	140.4	16.4	694.4	111.9	15.7
Year 5	31.9	18.4	2.2	91.1	14.7	2.1
Total Annual Construction Emissions						
Year 1	98.4	95.1	6.34	1,063.1	119.2	7.4
Year 2	526.6	495.8	31.3	2,170.4	281.8	44.6
Year 3	677.7	627.9	50.55	2,407.9	329.8	49.1
Year 4	433.6	460.9	27.22	850.8	140.1	32.3
Year 5	126.9	211.1	10.28	206.2	31.9	11.0
Year 6	39.0	70.2	7.1	26.9	5.8	2.1
Year 7	1.2	10.4	<0.1	13.9	1.4	0.1
Year 8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
The EPA National Emissions Inventory, Cameron County^c						
2008	9,366.2	52,511.8	107.0	32,165.8	4,371.8	28,884.9
2011	9,101.9	52,167.4	217.1	21,988.4	3,167.0	30,044.6
2014	7,864.3	43,352.9	82.0	11,023.3	2,340.3	24,701.4

Table 4.13.2-2 (continued)						
Estimated Construction Emissions for the Brownsville LNG Projects (tons per year) ^{a,b}						
Facility and Year	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}	VOC
^a	Emissions estimates include construction emissions from on- and off-road vehicle activity, truck deliveries, vessel activity, worker commutes, and fugitive dust. RG LNG and Annova LNG applicants initially expected construction of the LNG Terminal to begin in 2018; however, the start of construction for all proposed projects is dependent on receipt of necessary permits.					
^b	Additional fill material may be obtained from the Port Isabel dredge pile for the Project; RG LNG is currently conducting an analysis of the barge transport alternative for feasibility of use (see section 3.4). If used, RG LNG would obtain the fill via barge. RG LNG estimated annual fugitive emissions from use of the proposed temporary haul road originally proposed for use on the Project; because the haul road is no longer part of the Project, but the transport of material by barge may not be required, we have included use of the haul road as a conservative estimate.					
^c	Assumes all three Brownsville LNG Projects would initiate emission-generating construction activities in 2020.					
^d	Due to refinements and modifications in the methods used to compile each inventory, the inventory results should not be used to describe year-to-year emissions trends.					

The EPA's national emissions inventory data include estimated emissions from on- and off-road mobile sources (vehicle travel), point sources (such as electric power generation facilities), and nonpoint sources (stationary sources that are individually small and numerous, such as residential heating and commercial marine vessels; EPA 2014). Previous national emissions inventories conducted in 2008 and 2011 documented greater total emissions for criteria pollutants than the 2014 data; however, we have presented data from 2014 as a conservative estimate and to present the most recent inventory data. Further, since the 2014 emissions inventory, economic growth in Cameron County may have resulted in increased air emissions. Given the high level of construction emissions estimated for the three LNG terminals relative to the most recently inventoried emissions in the Project area, simultaneous construction of these projects could result in a temporary, moderate to major increase in emissions of criteria pollutants during construction. Construction emissions are localized, and impacts would be greatest in the immediate vicinity of the LNG terminal sites. RG LNG, Annova LNG, and Texas LNG would implement mitigation measures to minimize construction impacts on air quality, including application of water to minimize fugitive dust, limit engine idling, and using recent models of construction of equipment manufactured to meet air quality standards.

Further, transport of construction materials associated with the Project could occur within the HGB area, which is a marginal nonattainment area for the 2015 8-hour ozone standard. Similarly, the Annova LNG and Texas LNG Projects would also receive deliveries of construction materials originating from or being transported through the HGB area. Although cumulative emissions are not subject to General Conformity, the cumulative construction emissions from the Rio Grande LNG, Annova LNG, and Texas LNG Projects occurring within the HGB area would not be expected to result in an exceedance of applicable general conformity thresholds for the HGB area.

Pipeline Facilities

Construction of the pipeline facilities and many of the other projects listed in table 4.13.1-2 would involve the use of heavy equipment that would generate air emissions (including fugitive dust). The majority of these impacts would be temporary at a discrete location, because

the construction activities would occur over a large geographical area and would be moving regularly. However, construction would occur over a longer timeframe at aboveground facilities and during HDD installation at the crossings of Resaca de los Cuates, the Channel to San Martin Lake and the Channel to the Bahia Grande, which could require 1 month or more to complete.

Air emissions resulting from diesel- and gasoline-fueled construction equipment and vehicle engines for the pipeline facilities would be minimized by federal design standards required at the time of manufacture of the equipment and vehicles, and would comply with the EPA's mobile and non-road emission regulations found in 40 CFR 85, 86, and 89. In addition, RB Pipeline would use the most fuel-efficient construction equipment available, and would use buses where feasible to minimize emissions from worker commutes. While fugitive dust impacts would also be temporary and not be expected to affect local or regional air quality, dust suppression techniques would be implemented in construction work areas, when necessary, to reduce potential impacts of fugitive dust emissions. Therefore, construction of the Rio Bravo Pipeline, with other projects in the geographic scope, would contribute to minor, temporary impacts on air quality.

Operations

Cumulative impacts of pollutants such as criteria pollutants and HAPs associated with the operation of the LNG Terminal are evaluated according to the "significant impact area" of the proposed facilities, determined through a significant impact modeling assessment. These were analyzed for chronic and acute health impacts due to inhalation, as well as secondary environmental effects. For these pollutants, FERC considers a geographic scope for cumulative impacts assessment of up to 50 kilometers (31 miles). However, FERC does not use 50 kilometers to evaluate GHG emissions. GHGs were identified by the EPA as pollutants in the context of climate change. GHG emissions do not directly cause local ambient air quality impacts. GHG emissions result in fundamentally global impacts that feed back to localized climate change impacts. Thus, the geographic scope for cumulative analysis of GHG emissions is global rather than local or regional. For example, a project 1 mile away emitting 1 ton of GHGs would contribute to climate change in a similar manner as a project 2,000 miles distant also emitting 1 ton of GHGs.

Projects that are most likely to result in and contribute to cumulative air impacts with construction of the Rio Grande LNG Terminal include the Annova LNG Project, the Texas LNG Project, non-jurisdictional facilities, Port of Brownsville projects (including the Steel Mill), and waterway improvement projects. The Airport Terminal Expansion could also contribute to operational air emissions; however, the timing of the expansion is not known. In addition, those projects within 31 miles of the aboveground facilities associated with the Rio Bravo Pipeline may contribute to cumulative impacts on air quality with the pipeline facilities.

LNG Terminal

Air pollutant emissions during operation of the Rio Grande LNG Terminal would result from operation of the various components of the LNG Terminal, marine traffic, and vehicles driven by personnel commuting to and from the site. The region in the vicinity of the LNG

Terminal is currently in attainment with the NAAQS; however, increases in industrial point sources could affect local and regional air quality.

The Annova LNG and Texas LNG terminals have the greatest potential to contribute to cumulative impacts on air quality with the proposed Rio Grande LNG Terminal, given the proximity and similar operations of the projects. Emissions from currently operational facilities, such as the Brownsville Liquids Terminal and Port of Brownsville Marine Cargo Dock 16 and Storage Yard, are captured in ambient air quality monitoring data. While estimates of construction emissions from non-jurisdictional projects, the two Port of Brownsville Projects that are yet to be constructed, and waterway improvement projects within the BSC are not available, based on the intermittent and short-term nature of construction, these Projects would have a negligible impact on cumulative air emissions if they are concurrent with operations of the proposed Rio Grande LNG Terminal. Any operational emissions from the Steel Mill and Jupiter Export Terminal would be subject to applicable federal and state permitting, and therefore would not be permitted to result in a NAAQS exceedance.

We assessed the air dispersion modeling results provided for the Rio Grande LNG, Texas LNG, and Annova LNG Terminals and used these models to estimate the cumulative air emissions during concurrent operation at all three facilities. Appendix P describes the methods used to conduct the cumulative assessment and provides the results of our analysis, including figures depicting the cumulative concentrations of each criteria air pollutant assessed (figures P-1 through P-8 in appendix P). Table 4.13.2-3, below, totals the modeled ambient pollutant concentrations for the Brownsville LNG terminals operating during full build-out, including LNG carriers and support vessels operating during LNG loading and unloading at the terminal sites. The estimated cumulative peak concentration is based on combining the predicted concentrations from each project at each receptor location regardless of the time when it occurs. Since the timing and location of the maximum predicted impacts from each terminal would differ, and because it is unlikely that all three terminals would be loading LNG carriers simultaneously, the method used to develop the peak cumulative concentrations is conservative.

Peak estimated concentration for criteria pollutants and averaging periods were compared to the NAAQS, which represent standardized air quality criteria and were therefore used as a benchmark for comparison against model results. For all pollutants, except for 1-hour NO₂, cumulative impacts are predicted to be below the NAAQS and would disperse before reaching population centers in Port Isabel and Laguna Heights (see appendix P). Although estimated emissions for each project individually would not exceed the NAAQS, for 1-hour NO₂, the predicted maximum cumulative impact is estimated to exceed the short-term NAAQS of 188 µg/m³. The predicted peak cumulative impact, however, is located between the fencelines of the Rio Grande LNG and Texas LNG Terminals. It is unlikely, but possible, that people may be exposed to the NO₂ concentrations above the 1-hour NAAQS, which would occur on property within the Port of Brownsville (see appendix P and figure 4.13.2-1). Concentrations of 1-hour NO₂ in residential areas in Port Isabel and Laguna Heights are estimated to be below 75 µg/m³, which is well below the 1-hour NAAQS. While concurrent maximal operations of the LNG facilities would result in increased concentrations of air pollutants in the immediate vicinity of the facilities, the projects emissions are not expected to result in a significant impact on regional air quality, nor would any exceedance of the NAAQS occur in a populated area.

Table 4.13.2-3

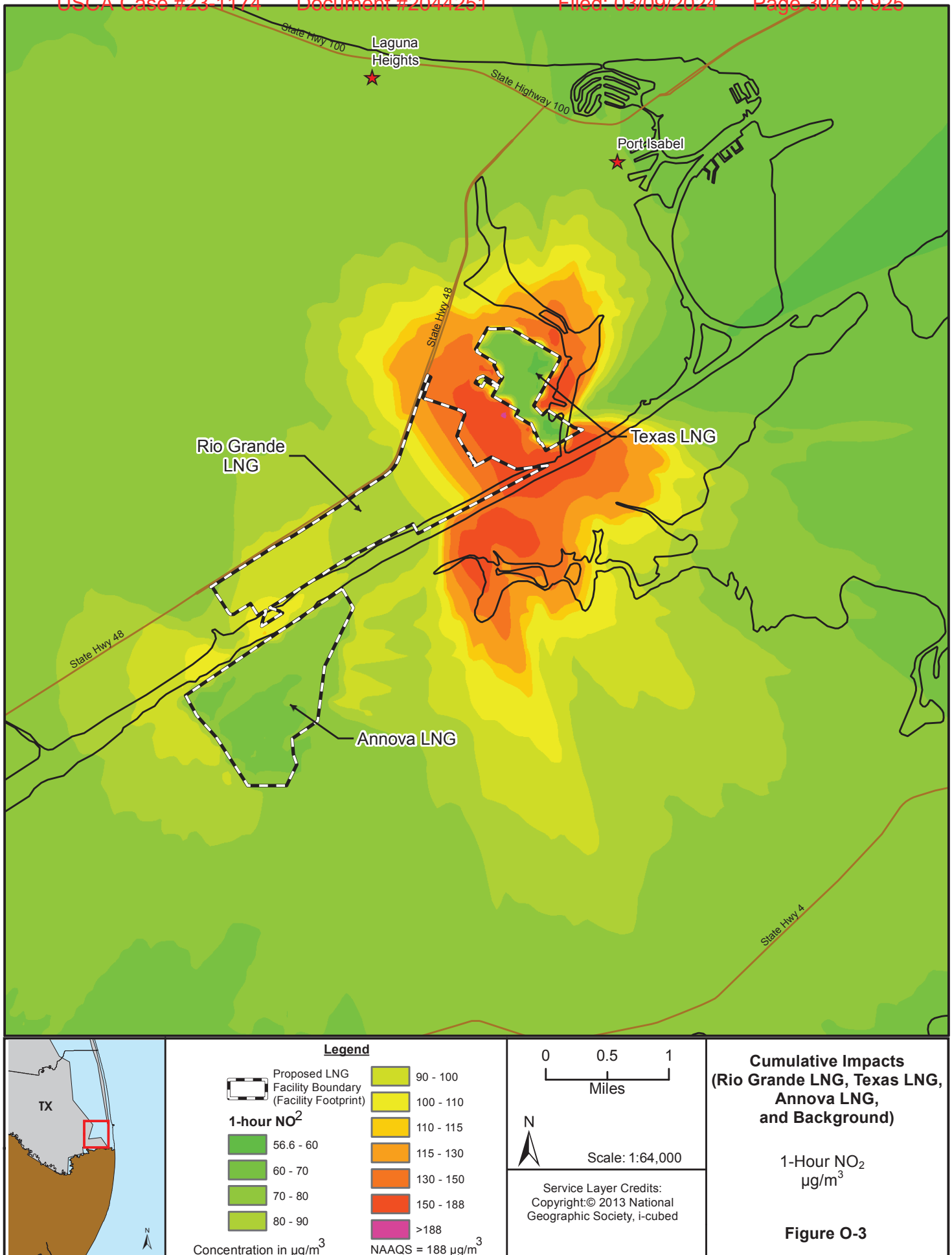
Peak Concentrations Estimated in Cumulative Air Dispersion Modeling for Stationary Source and LNG carriers for the Brownsville LNG Projects

Criteria Air Pollutant	Averaging Period	Background Concentration ^a (µg/m ³)	Peak Concentration based on Modeled Results (µg/m ³) ^b				NAAQS (µg/m ³)
			Rio Grande LNG Terminal	Annova LNG	Texas LNG	Peak Cumulative Concentration ^c	
CO	1-hour	2,175.5	276.1	247.9	470.6	2,746	40,000
	8-hour	1,259.5	174.0	101.7	83.4	1,453	10,000
NO ₂	1-hour	49.9	78.9	39.3	134.7	196	188
	Annual	6.1	2.7	0.5	1.8	9	100
SO ₂	1-hour	10.6	2.0	3.8	10.3	23	196
PM ₁₀	24-hour	62.0	1.4	0.7	2.3	64	150
PM _{2.5}	24-hour	22.9	1.3	0.7	2.0	25	35
	Annual	9.1	0.3	0.1	0.1	9	12

^a Background concentrations retrieved from tables 4-1 and 4-2 of the dispersion modeling report provided for the Texas LNG Project (available on FERC's eLibrary website, located at <http://www.ferc.gov/docs-filing/elibrary.asp>, by searching Docket Number CPI6-116 and accession number 20170928-5165).

^b Modeled impacts include stationary sources and LNG carriers at the LNG terminal sites and are based on 312 LNG carriers annually for the Rio Grande LNG Project, 74 LNG carriers annually for the Texas LNG Project, and 80 LNG carriers annually for the Annova LNG Project.

^c Peak concentrations predicted for each of the three projects for each receptor location were conservatively combined without regard to day or time of occurrence, and include background concentrations. The peak cumulative concentration for each pollutant and averaging period does not equal the sum of the peak concentrations for each terminal and background, since peak concentrations associated with each terminal occur at different locations.



JA295

In response to comments issued by the Sierra Club on the draft EIS, we assessed the potential for cumulative impacts on ozone levels in the Project area. As described in section 4.11.1.3 of the EIS, based on a conservative analysis by the TCEQ, the 8-hour maximum predicted increase of ozone would be 11.6 ppb which, when considered with the background ozone concentration of 57 ppb, would not result in an exceedance of the 8-hour ozone standard. The Annova LNG Terminal and Texas LNG Terminal would not be major PSD sources with respect to ozone precursor pollutants NO_x and VOC; therefore, an ozone impact assessment is not required for air permitting for these projects. Concurrent operation of the three Brownsville LNG terminals would result in greater total emissions of NO_x , as described above and in appendix P; however, the combined total annual operating emissions of NO_x by the Annova and Texas LNG Terminals identified in their draft EISs would be less than 10 percent of the NO_x emissions estimated for the Rio Grande LNG Terminal. If the maximum predicted increase of ozone estimated for the Rio Grande LNG Terminal is increased by 10 percent, and considered with the background ozone concentration identified above, cumulative emissions would not exceed the 8-hour ozone standard.

While the cumulative ambient modeling assessment does not account for concurrent construction, commissioning, and operations emissions, the greatest emissions from each LNG Terminal are associated with operations. We are aware that each LNG Terminal could be constructed within the same time period, and the concurrent construction, commissioning, and operations emissions of the Rio Grande LNG Terminal and the other proposed LNG Terminals could potentially exceed the NAAQS in local areas, and result in cumulatively greater local air quality impacts. While these concurrent activities would result in greater ambient pollutant concentrations than those presented in table 4.13.2-3, emissions levels would not be expected to result in a long-term impact on regional air quality. Concurrent activities would be limited to the timeframe of construction and commissioning and start-up.

In addition to operation of the LNG Terminal and the vessel emissions described in section 4.11.1.3, air emissions from LNG carriers, considered mobile sources of air emissions, would occur along the entire LNG carrier route during operations. These emissions would be cumulative with the other ships using the ship channel. These mobile sources would be transitory in nature and emissions would occur over a large area, however the cumulative ship emissions would result in long-term elevated emissions for the area.

Pipeline Facilities

Operation of the proposed pipeline facilities would generate emissions from maintenance vehicles and equipment, as well as vented and fugitive emissions. While a majority of the projects in the geographic scope are included above in the assessment of cumulative impacts associated with the LNG Terminal and Compressor Station 3, the VCP, and the seven Port of Brownsville Projects, are or would be within 31 miles of the other aboveground facilities associated with the Rio Bravo Pipeline. Concurrent operation of Compressor Stations 1 and 2, the booster stations, these other projects would result in a cumulative increase in combustion and fugitive emissions. The compressor stations would emit NO_x , CO, SO_2 , PM, VOC, HAPs, and GHG emissions. However, no compressor or booster stations associated with the proposed Project would trigger PSD major source permitting requirements for any pollutant. Operation of aboveground facilities would not cause a NAAQS exceedance, and concurrent operations with

the VCP and Port of Brownsville Projects are not expected to result in a NAAQS exceedance. While the Palmas Altas Wind Farm is about 31 miles from Compressor Station 2, operational emissions associated with the wind farm would likely be limited to maintenance activity and would be negligible. Therefore, emissions from operation of RB Pipeline's pipeline facilities are not expected to contribute to a significant cumulative impact on local or regional air quality.

Conclusion

In summary, the Rio Grande LNG Project would result in impacts on air quality during construction and long-term impacts during operations. Cumulative impacts from construction would be limited to the duration of the construction period. However, with other Projects in the vicinity, construction of the Rio Grande LNG Project would contribute to localized moderate elevated emissions near construction areas during the period(s) when construction of these activities would overlap.

Operational air emissions from the Rio Grande LNG Project would contribute to cumulative emissions with other projects in the geographic scope, and would be required to comply with applicable air quality regulations. Overall, impacts from the Rio Grande LNG Project along with the other facilities would cause elevated levels of air contaminants in the area and a potential exceedance of the 1-hour NO₂ NAAQS in an uninhabited area between the facilities. Therefore, cumulative impacts on regional air quality as a result of the operation of the Rio Grande LNG Project and other facilities would be long-term during the operational life of the Project, but minor. We are aware that each LNG Terminal could be constructed within the same time period, and the concurrent construction, commissioning, and operations emissions of the proposed Brownsville LNG terminals could potentially exceed the NAAQS in local areas, and result in cumulatively greater local air quality impacts. In addition, emissions from LNG carriers would occur along vessel transit routes and would be cumulative with the other ships using the ship channel. These emissions sources would be transitory in nature and emissions would occur over a large area, however the cumulative ship emissions would result in long-term elevated emissions for the area. Emissions from operation of RB Pipeline's aboveground facilities (including Compressor Stations 1 and 2 and the booster stations) would be long-term, minor, and are not expected to contribute to a significant cumulative impact on local or regional air quality.

Climate Change

Climate change is the variation in climate (including temperature, precipitation, humidity, wind, and other meteorological variables) over time, whether due to natural variability, human activities, or a combination of both, and cannot be characterized by an individual event or anomalous weather pattern. For example, a severe drought or abnormally hot summer in a particular region is not a certain indication of climate change. However, a series of severe droughts or hot summers that statistically alter the trend in average precipitation or temperature over decades may indicate climate change. Recent research has begun to attribute certain extreme weather events to climate change (U.S. Global Change Research Program [USGCRP] 2018).

The leading U.S. scientific body on climate change is the USGCRP, composed of representatives from 13 federal departments and agencies.⁸⁶ The Global Change Research Act of 1990 requires the USGCRP to submit a report to the President and Congress no less than every four years that “1) integrates, evaluates, and interprets the findings of the Program; 2) analyzes the effects of global change on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity; and 3) analyzes current trends in global change, both human-induced and natural, and projects major trends for the subsequent 25 to 100 years.” These reports describe the state of the science relating to climate change and the effects of climate change on different regions of the United States and on various societal and environmental sectors, such as water resources, agriculture, energy use, and human health.

In 2017 and 2018, the USGCRP issued its *Climate Science Special Report: Fourth National Climate Assessment*, Volumes I and II (Fourth Assessment Report) (USGCRP 2017; and USGCRP 2018, respectively). The Fourth Assessment Report states that climate change has resulted in a wide range of impacts across every region of the country. Those impacts extend beyond atmospheric climate change alone and include changes to water resources, transportation, agriculture, ecosystems, and human health. The United States and the world are warming; global sea level is rising and acidifying; and certain weather events are becoming more frequent and more severe. These changes are driven by accumulation of GHG in the atmosphere through combustion of fossil fuels (coal, petroleum, and natural gas), combined with agriculture, clearing of forests, and other natural sources. These impacts have accelerated throughout the end 20th and into the 21st century (USGCRP 2018).

Climate change is a global phenomenon; however, for this analysis, we will focus on the existing and potential cumulative climate change impacts in the Project area. The USGCRP’s Fourth Assessment Report notes the following observations of environmental impacts are attributed to climate change in the Southern Great Plains and South Texas regions (USGCRP 2017; USGCRP 2018):

- the region has experienced an increase in annual average temperature of 1°-2 °F since the early 20th century, with the greatest warming during the winter months;
- over the past 50 years, significant flooding and rainfall events followed drought in approximately one-third of the drought-affected periods in the region when compared against the early part of the 20th century;
- the number of strong (Category 4 and 5) hurricanes has increased since the early 1980s; and

⁸⁶ The USGCRP member agencies are: Department of Agriculture, Department of Commerce, Department of Defense, Department of Energy, Department of Health and Human Services, Department of the Interior, Department of State, Department of Transportation, Environmental Protection Agency, National Aeronautics and Space Administration, National Science Foundation, Smithsonian Institution, and U.S. Agency for International Development.

- global sea level rise over the past century averaged approximately eight inches; along the Texas coastline, sea levels have risen 5-17 inches over the past 100 years depending on local topography and subsidence.

The USGCRP's Fourth Assessment Report notes the following projections of climate change impacts in the Project region with a high or very high level of confidence⁸⁷ (USGCRP 2018):

- annual average temperatures in the Southern Great Plains are projected to increase by 3.6°–5.1 °F by the mid-21st century and by 4.4°–8.4 °F by the late 21st century, compared to the average for 1976-2005;
- the region is projected to experience an additional 30 to 60 days per year above 100 °F than it does currently;
- tropical storms are projected to be fewer in number globally, but stronger in force, exacerbating the loss of barrier islands and coastal habitats;
- southern Texas is projected to see longer dry spells, although the number of days with heavy precipitation is expected to increase by mid-century; longer periods of time between rainfall events may lead to declines in recharge of groundwater, which would likely lead to saltwater intrusion into shallow aquifers and decreased water availability; and
- sea level rise along the western Gulf of Mexico during the remainder of the 21st century is likely to be greater than the projected global average of 1-4 feet or more, which would result in the loss of a large portion of remaining coastal wetlands.

It should be noted that while the impacts described above taken individually may be manageable for certain communities, the impacts of compound extreme events (such as simultaneous heat and drought, wildfires associated with hot and dry conditions, or flooding associated with high precipitation on top of saturated soils) can be greater than the sum of the parts (USGCRP 2018).

The GHG emissions associated with construction and operation of the Project are described in section 4.11. Construction and operation of the Project would increase the atmospheric concentration of GHGs in combination with past, current, and future emissions from all other sources globally and contribute incrementally to future climate change impacts.

Currently, there is no universally accepted methodology to attribute discrete, quantifiable, physical effects on the environment to Project's incremental contribution to GHGs. We have

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The report authors assessed current scientific understanding of climate change based on available scientific literature. Each "Key Finding" listed in the report is accompanied by a confidence statement indicating the consistency of evidence or the consistency of model projections. A high level of confidence results from "moderate evidence (several sources, some consistency, methods vary and/or documentation limited, etc.), medium consensus." A very high level of confidence results from "strong evidence (established theory, multiple sources, consistent results, well documented and accepted methods, etc.), high consensus." <https://science2017.globalchange.gov/chapter/front-matter-guide/>

looked at atmospheric modeling used by the EPA, National Aeronautics and Space Administration, the Intergovernmental Panel on Climate Change, and others, and we found that these models are not reasonable for project-level analysis for a number of reasons. For example, these global models are not suited to determine the incremental impact of individual projects, due to both scale and overwhelming complexity. We also reviewed simpler models and mathematical techniques to determine global physical effects caused by GHG emissions, such as increases in global atmospheric CO₂ concentrations, atmospheric forcing, or ocean CO₂ absorption. We could not identify a reliable, less complex model for this task and we are not aware of a tool to meaningfully attribute specific increases in global CO₂ concentrations, heat forcing, or similar global impacts to project-specific GHG emissions. Similarly, it is not currently possible to determine localized or regional impacts from GHG emissions from the Project.

Absent such a method for relating GHG emissions to specific resource impacts, we are not able to assess potential GHG-related impacts attributable to this project. Additionally, we have not been able to find any GHG emission reduction goals established either at the federal level⁸⁸ or by the State of Texas. Without either the ability to determine discrete resource impacts or an established target to compare GHG emissions against, we are unable to determine the significance of the Project's contribution to climate change.

Noise

The geographic scope for construction noise typically includes other identified projects within 0.25 mile of the proposed Project, or within 0.5 mile from HDD entry and exit locations. However, due to the duration of construction and similar timelines, we have included the Annova LNG and Texas LNG Projects in our cumulative construction noise impact analysis, even though the Annova LNG Project would be outside of the 0.25-mile distance. Cumulative noise impacts on residences and other NSAs are related to the distance from the disparate noise sources as well as the timing of each noise source.

The geographic scope for operational noise from long-term projects includes any facilities that can cause an impact at NSAs within 1 mile of the proposed Rio Grande LNG Terminal and aboveground facilities along the Rio Bravo Pipeline. The Annova LNG and Texas LNG Projects have been included in the cumulative effect impact assessment, as well as other existing and proposed projects in the area (see table 4.13.1-1).

After construction is completed for the non-LNG projects, including the gas and water pipeline projects, electric transmission projects, channel improvements and maintenance dredging, and road projects, there would be minimal operational noise impacts. The non-jurisdictional SH-48 auxiliary lane and new driveways that would be developed for the Rio Grande LNG Project would have some long-term but minor noise associated with vehicle traffic

⁸⁸ The national emissions reduction targets expressed in the EPA's Clean Power Plan and the Paris climate accord are pending repeal and withdrawal, respectively.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF THE ENVIRONMENTAL ANALYSIS

The conclusions and recommendations presented in this section are those of the FERC environmental staff. Our conclusions and recommendations are based on input from the COE, FWS, NPS, NMFS, FAA, Coast Guard, EPA, DOE, and DOT as cooperating agencies in preparation of this EIS. However, the cooperating agencies will present their own conclusions and recommendations in their respective Records of Decision or determinations. The cooperating agencies can adopt this EIS consistent with 40 CFR 1501.3 if, after an independent review of the document, they conclude that their requirements have been satisfied. Otherwise, they may elect to conduct their own supplemental environmental analyses.

We conclude that construction and operation of the Rio Grande LNG Project would result in limited adverse environmental impacts. Most adverse environmental impacts would be temporary or short-term during construction and operation, but long-term and permanent environmental impacts would also occur as part of the Project. As part of our analysis, we developed specific mitigation measures that are practical, appropriate, and reasonable for the construction and operation of the Project. We are, therefore, recommending that these mitigation measures be attached as conditions to any authorization issued by the Commission. With the exception of certain cumulative impacts that the Project would contribute to (sediment/turbidity and shoreline erosion within the BSC during operations from vessel transits; federally listed ocelot and jaguarundi from habitat loss and the potential for increased vehicular strike during construction; on the federally listed northern aplomado falcon from habitat loss; and visual resources from the presence of new facilities), implementation of the mitigation proposed by RG Developers and our recommended mitigation would ensure that impacts in the Project area would be avoided or minimized and would not be significant. A summary of the Project impacts and our conclusions are presented below by resource.

5.1.1 Geologic Resources (Pipeline Facilities)

Construction and operation of the pipeline facilities would not significantly affect or be affected by geologic conditions in the area. Active mining and nonfuel mineral resources would not be affected by construction or operation of the pipeline facilities, and no active or permitted well sites are within or adjacent to the proposed Pipeline System right-of-way or compressor, booster, or meter station sites. In general, the potential for geologic hazards such as earthquakes, soil liquefaction, or landslides to significantly affect construction or operation of the pipeline facilities is low. To avoid potential damage to equipment by flooding, and to minimize the potential for contamination in the event of a flood, critical infrastructure and potential sources of contamination would be elevated. Additionally, Compressor Station 3 would be sited within a flood protection levee to mitigate potential flood hazard.

Subsidence could occur in the Project vicinity due to oil and gas extraction and groundwater withdrawal. Facilities would be within active oil and gas fields and within 200 feet of 13 water supply wells for groundwater withdrawals from the Gulf Coast Aquifer. However, water withdrawal and associated subsidence along the pipeline route would be minimal. The

overall effect of the pipeline facilities on topography and geology would be minor. The primary impacts on geologic resources would be due to the permanent alteration of geologic conditions at the aboveground facilities. At the aboveground facilities, grading and filling may be required to create a safe and stable land surface to support the facility. Blasting is not anticipated during construction of the pipeline facilities.

Results of the geotechnical investigation concluded that a shallow foundation system would adequately support lightly loaded structures at the aboveground facilities; however, at the heavily loaded and settlement-sensitive structures at Compressor Station 1, deep foundations consisting of piles are recommended. The pipeline facilities must be designed and installed in accordance with DOT standards, including those in 49 CFR 192, *Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards*. In addition, RB Pipeline would routinely monitor the geotechnical integrity of its facilities as part of its current operations and maintenance activities, and take any corrective actions necessary to repair damage during the life of the Project. Geotechnical investigations for Compressor Station 2, the booster stations, and proposed HDD locations are pending; therefore, we recommend that the results of these investigations, as well as any mitigation that RB Pipeline would adopt as part of the final engineering design, be provided prior to construction. Based on implementation of the Project-specific Plan and Procedures, and our recommended mitigation measures, we conclude that impacts on geological resources would be adequately minimized and the potential for impacts on the pipeline facilities from geologic hazards also would be minimal.

5.1.2 Soils

Project construction activities such as clearing, grading, excavation, backfilling, and the movement of construction equipment may affect soil resources. To reduce the impacts of construction on soils, RG LNG would implement measures outlined in its Plan and Procedures. Additional mitigation measures would include the installation and maintenance of temporary erosion and sedimentation controls to prevent sediment flow from construction areas into adjacent, undisturbed areas, and regular monitoring and inspection of disturbed areas until final stabilization is achieved. RG LNG would use timber mats and low ground pressure equipment to minimize potential rutting and compaction during wet soil conditions. In severely compacted areas on agricultural land, RB Pipeline would decompact soils by tilling in accordance with its Plan. RG Developers would implement their SWPPPs and SPCC Plans to reduce potential impacts on soils from spills of hazardous materials used during construction and operation; we recommend that these plans be finalized prior to construction. To account for agency input into fugitive dust control specifying that no chemicals may be used in Willacy and Cameron Counties, we recommend that prior to construction RG Developers file their final Fugitive Dust Control Plans for the LNG Terminal and pipeline facilities for review and written approval by the Director of OEP.

Preparation of the LNG Terminal site would include adding material such as cement or lime to stabilize soils, depositing fill to increase ground elevation, and installing aggregate material to provide a safe and level work surface. These activities would permanently alter the soils and increase the potential for erosion until the LNG Terminal is constructed and the remaining exposed soils are stabilized and revegetated. Dredging at the LNG Terminal site would be completed by RG LNG in accordance with permits issued by the COE; dredged

materials placement would be conducted in accordance with the Dredged Material Management Plan, as finalized in coordination with the BND and COE. RG LNG would implement its Unanticipated Contaminated Sediment and Soils Discovery Plan if contaminated materials were encountered. To minimize shoreline erosion, the LNG Terminal waterfront along the BSC would be stabilized from the MOF to the berths and turning basin. RG LNG would maintain the integrity of the shoreline protection throughout the operational life of the LNG Terminal. Given the impact minimization and mitigation measures described above, and our recommendation to provide final plans prior to construction, we conclude that impacts on soils due to construction and operation of the Project would be permanent, but minor.

5.1.3 Water Resources

The Rio Grande LNG Project is within the Gulf Coast Aquifer. Although not a sole-source aquifer, groundwater is the primary water supply source along the northern portion of the Pipeline System (Jim Wells, Kleberg, and Kenedy Counties); surface water is the primary source of drinking water in the southern Project counties. RG Developers anticipate that all water required for operations would be obtained from municipal sources and would not impact the quantity of available groundwater. In addition, for wells within 150 feet of Project workspaces RB Pipeline would offer to perform pre- and post-construction monitoring for changes in well water quality and yield, and to mitigate for any adverse effects due to Project activities. While construction of the Project could result in temporary impacts on groundwater quality and recharge, implementation of RG Developers' Plan and Procedures and SPCC Plans would reduce the potential for groundwater impacts.

The proposed LNG Terminal site is on the north shore of the BSC, a man-made, marine navigation channel that connects to the Gulf of Mexico. The BSC, along with its Entrance Channel and Jetty Channel, form the Brazos Island Harbor. Construction and operation of the LNG Terminal would result in permanent impacts on 174.8 acres of open water, including impacts on the BSC and an open water lagoon within the LNG Terminal site. RG LNG would be required to mitigate for the permanent loss of open water resources and proposes to preserve open water within an off-site wetland mitigation area about 1 mile south of the Project; this proposal is under review by the COE.

Dredging, which would be conducted by hydraulic cutter suction or mechanical dredge, would result in increased suspended solid and turbidity levels in the BSC. All dredging would be conducted using equipment designed to meet the Texas state water quality standards and in accordance with applicable COE permit requirements. Disposal of dredged material would be conducted in accordance with RG LNG's draft Dredged Material Management Plan, as finalized; however, the final management of dredged material would be determined by the BND and COE, in consultation with other federal, state, and local resource agencies and interested stakeholders, including the EPA, NMFS, FWS, and the TCEQ. Impacts on surface water quality would be adequately mitigated through adherence to applicable COE permits and requirements for dredging and dredged material management. We conclude that dredging and dredged materials placement for construction of the LNG Terminal would have temporary and minor impacts on water quality.

Based on the results of hydrodynamic modeling conducted for the proposed widening of the BSC, the COE determined that the Brazos Island Harbor Project, a separate federal action not directly related to the proposed Project, would result in only negligible differences in surface water conditions (including tidal velocity, water surface elevations, and tidal range in the Laguna Madre). RG LNG's hydrodynamic model similarly indicated negligible changes on water conditions due to Project dredging, including modeled current speeds for both the current and deeper proposed depth of the BSC. RG LNG's hydrodynamic modeling also indicated that maintenance dredging would be required every 2 to 4 four years to maintain adequate depths.

RG LNG estimates that 880 barges and support vessels would deliver construction materials and equipment to the MOF and Port of Brownsville during LNG Terminal construction. During operation, about 312 LNG carriers would call on the LNG Terminal per year (about 6 LNG carriers per week). Vessel traffic during construction and operation could increase shoreline erosion and suspended sediment concentrations due to increased wave action. To minimize these impacts, the channel embankments and slope of the LNG Terminal site along the BSC, the marine loading berths, and the turning basin would be stabilized using rip-rap. Although FERC does not have jurisdiction over the transit of LNG carriers through the BSC, final permitting for the Brazos Harbor Channel Improvement Project should account for the impacts of these larger vessels on the stability of unarmored shorelines due to vessel passage and reflective wave energy.

During the 20- to 24-hour LNG loading period, each LNG carrier serving the LNG Terminal is anticipated to discharge about 10 million gallons of ballast water and withdraw/discharge up to 12 million gallons of water for engine-cooling and hoteling. Ballast water discharges at the LNG Terminal could impact water quality by changing the salinity, temperature, pH, and dissolved oxygen level of water within the BSC. Impacts on surface waters as a result of cooling water intake and discharge would be primarily limited to an increase in water temperature in the vicinity of the LNG carrier. As the volume of discharge per vessel would be negligible compared with the total volume of the BSC (estimated to be about 25 billion gallons), and because the LNG carriers would conduct ballast water exchanges in accordance with Coast Guard regulations and International Maritime Organization requirements, we conclude that impacts on surface water quality resulting from ballast and cooling water would be minor.

Before placing each component of the LNG Terminal into service, LNG tanks, non-cryogenic piping, and freshwater storage tanks would be hydrostatically tested. LNG tanks would be tested using about 30 million gallons of seawater each (120 million gallons total), which would be withdrawn from the BSC, and treated via filtration or use of a corrosion inhibitor, if needed, before use. Following each hydrostatic test, water would be transferred to the onsite stormwater ponds and tested for contamination prior to release in accordance with applicable discharge permits. RG LNG developed a draft LNG Tank Hydrostatic Test Plan for the use of water from the BSC for hydrostatic testing, which we recommend be finalized prior to construction. Hydrostatic test water used in the Pipeline System would be withdrawn from three waterbodies crossed by the pipelines (Los Olmos Creek, Arroyo Colorado, and Resaca De Los Cuates), and water would be re-used across different pipe segments to decrease the total volume of water required; about 45 million gallons of water would also be withdrawn from these waterbodies for dust suppression.

The Pipeline System would cross 63 waterbodies, including 21 perennial streams, 19 intermittent streams, 10 ephemeral streams, and 13 ponds and reservoirs. These waterbodies would be crossed using various crossing methods, including conventional bore and HDD. Two waterbodies crossed by the Project are regulated by the IBWC, both of which would be crossed via HDD; RB Pipeline indicated that it would design these HDDs to adhere to IBWC's criteria and plans to submit its permit application for crossing these waterbodies to the IBWC in the second quarter of 2019. Crossing of the IBWC-regulated waterbodies would not commence prior to the IBWC issuing a permit for these crossings.

RB Pipeline would minimize potential impacts on surface waters by implementing its Procedures and utilizing trenchless crossing methods for 26 of the 34 waterbodies anticipated to be flowing at the time of construction. Following construction of each pipeline, waterbody contours would be restored to pre-construction conditions, and riparian areas would be revegetated using native grasses, legumes, and woody species, and allowed to return to pre-construction conditions. With implementation of RG Developers' Plan and Procedures, SWPPPs, SPCCs, additional mitigation measures included in the EIS, adherence to applicable permits, and our recommendations, we conclude that impacts on groundwater and surface water resources would be adequately minimized.

5.1.4 Wetlands

Construction of the LNG Terminal would result in the permanent loss of 182.4 acres of wetlands and special aquatic sites, including 114.9 acres of EEM, 19.8 acres of ESS (mangroves), and 47.7 acres of mudflats. RB Pipeline has proposed a 75-foot-wide construction right-of-way for the majority of wetland crossings less than 1,000 feet in length. For wetlands with crossing lengths greater than 1,000 feet, RB Pipeline has proposed a construction right-of-way width of 100 feet. Construction workspace for Pipeline 1 would impact a total of 137.0 acres of wetlands, including 9.9 acres of PFO wetlands, 3.5 acres of PSS wetlands, 117.4 acres of emergent (PEM and EEM) wetlands, and 6.2 acres of mudflats (EUS). About 18 months after the construction of Pipeline 1, Pipeline 2 would be constructed within the same right-of-way, which would impact the same wetlands in early successional stages of regrowth. Following construction, wetlands would be restored to pre-construction conditions and would be allowed to revegetate naturally, or by RB Pipeline's use of seed mixes in accordance with NRCS recommendations. Of the 107.3 acres of wetlands within the permanent footprint of the Pipeline System, 7.8 acres would be PFO and 3.5 acres would be PSS wetland.

RG Developers would implement their Procedures to control erosion and restore the grade and hydrology after construction in wetlands. In accordance with its Procedures, RB Pipeline would consult with the COE to develop a Project-specific wetland restoration plan. RG LNG is also developing a plan to mitigate for wetland impacts; its Conceptual Mitigation Plan identifies the potential to acquire and preserve a portion of the Loma Ecological Preserve in perpetuity, and to transfer the land to a land manager, such as the FWS. The COE has not approved RG LNG's Conceptual Mitigation Plan and is working with RG Developers, in conjunction with the FWS, EPA, and TPWD to revise the proposed mitigation measures as appropriate.

The FERC Procedures (section VI.A.6) specify that aboveground facilities, with few exceptions, should be located outside of wetlands. Although RG LNG proposes to site the LNG Terminal (including Compressor Station 3) in wetlands, we determined that the proposed location is the most environmentally preferable and practical alternative that meets the Project's stated purpose. However, the placement of the LNG Terminal in wetlands must be approved by the COE prior to construction. RB Pipeline has identified temporary workspace near one wetland that is inaccessible from the right-of-way; we recommend that, prior to construction, RB Pipeline reconfigure the right-of-way at this location (MP 36.5).

With adherence to measures contained in the Project-specific Procedures and applicable COE permits, impacts on wetlands would be reduced, with the majority of adverse permanent impacts occurring at the LNG Terminal site. We anticipate that the COE's CWA Section 404/Section 10 permit for the Project would be conditioned to effectively offset the Project-related adverse impacts on waters of the United States by wetland mitigation, such that impacts would be reduced to less than significant levels.

5.1.5 Vegetation

RG LNG has leased a 984.2-acre property from the BND for placement of the Rio Grande LNG Terminal. The property is generally low-lying (elevations of less than 10 feet), with higher-elevation features (up to 25 feet high) including lomas (coastal clay dunes) and dredge spoil piles. The site itself is dominated by a lagoon, tidal flats, and marshes on the east; a mud/salt flat complex and mangroves on the west; and a terraced area in the center and along the banks of the BSC that was used as historic dredge spoil placement. A total of 750.4 acres of land would be cleared during construction at the LNG Terminal site, including 562.9 acres of vegetated land that would be permanently converted to industrial use associated with operation of the facility. This permanent conversion would result in the loss of 191.5 acres of upland herbaceous land, 189.1 acres of upland shrub/forest land, 162.5 acres of emergent wetlands, and 19.8 acres of shrub/forested wetlands. About 233.8 acres of land, including 103.5 acres of wetland habitat, is present outside the boundary of the proposed facilities, but within the larger parcel leased by RG LNG, and would generally be maintained as a natural buffer.

Construction of the Header System and Pipeline 1, including ATWS, would affect 1,980.6 acres of vegetation, including 828.4 acres of upland herbaceous land, 533.9 acres of agricultural land, 481.2 acres of upland shrub/forest land, 123.7 acres of emergent wetlands, and 13.4 acres of shrub/forested wetlands. Following construction, 497.1 acres of upland herbaceous land, 321.2 acres of agricultural land, 287.5 acres of upland shrub/forest land, 95.5 acres of emergent wetlands, and 11.3 acres of shrub/forested wetlands within the permanent easement would be restored to pre-construction conditions, but would be subject to routine maintenance. Shrub/forest land within maintained portions of the permanent right-of-way would be permanently converted to herbaceous or early successional-stage scrub-shrub land. Pipeline 2 would be installed within the same 125-foot-wide construction right-of-way affected by Pipeline 1. As such, all land disturbed by the construction of Pipeline 2 would have been previously disturbed during the construction of Pipeline 1. Aboveground facilities for the Pipeline System would permanently convert vegetation to a developed state.

RG Developers conducted noxious and invasive weed surveys at the LNG Terminal site and along accessible portions of the pipeline route. No state listed weeds were identified; however, additional surveys along the pipeline route would be conducted prior to construction, and RB Pipeline would implement its Noxious and Invasive Plant Management Plan to control the potential spread of weeds.

Two vegetation communities of concern occur within proposed Project workspaces, including lomas and south Texas salty thornscrub. Although neither community is a protected habitat, they are considered habitat for the federally endangered ocelot and northern aplomado falcon. Three lomas are within the LNG Terminal site, one of which would be lost during construction. As no special vegetation communities have been noted as occurring on these lomas, the loss of this habitat would be considered a permanent, but minor impact. Construction and operation of the LNG Terminal would result in the conversion of 138.4 acres of south Texas salty thornscrub habitat to developed land. No land classified as south Texas salty thornscrub was identified within the footprint of the pipeline facilities. The TPWD, in its comments on the draft EIS, requested that topsoil segregation be conducted across the entire Pipeline System to preserve the native seed bank, which may include rare plant species; we recommend that RB Pipeline consult with the TPWD to determine specific areas of potential rare plant occurrence to determine additional areas where topsoil segregation may be warranted.

Overall, the Project would result in temporary to permanent impacts on vegetation. The impacts of the Pipeline System would generally be temporary or short-term, although vegetated habitat would be converted to industrial/commercial land within the footprint of the aboveground facilities, and would be maintained as herbaceous or early successional scrub-shrub habitat within the permanent right-of-way. Construction and operation of the LNG Terminal would result in permanent impacts on vegetation within the footprint of the facility, although impacts on wetland vegetation would be mitigated as required by the COE under Section 404 of the CWA.

5.1.6 Wildlife and Aquatic Resources

Construction of the LNG Terminal site, including Compressor Station 3, would affect the vegetated wildlife habitat identified above, as well as 174.8 acres of open water onsite and in the proposed dredging areas. This habitat would be permanently converted to an industrial state, resulting in displacement, stress, and direct mortality of some individuals. To minimize the potential for direct mortality during initial clearing, RG LNG would conduct pre-construction surveys and hazing at the LNG Terminal property to flush wildlife from the site prior to completing the fencing. Impacts from construction and operation of the LNG Terminal from increased human activity, lighting, and noise are not anticipated to result in significant impacts on wildlife populations, given that local wildlife are likely acclimated to the increased noise and human presence associated with the adjacent SH-48 and BSC. Further, in response to comments on the draft EIS regarding concern over facility lighting, we recommend that RG Developers finalize Project lighting plans in coordination with the FWS and TPWD to minimize potential effects on wildlife. However, the direct loss of habitat and the indirect effects associated with displacement indicate that the construction and operation of the proposed LNG Terminal would result in a minor to moderate, permanent impact on local wildlife.

The Header System and Pipeline 1 would affect 1,998.5 acres of wildlife habitat, including 828.4 acres of upland herbaceous land, 533.9 acres of agricultural land, 481.2 acres of upland shrub/forest land, 123.7 acres of emergent wetlands, 13.4 acres of shrub/forested wetlands, and 7.9 acres of open water. Following construction, 497.1 acres of upland herbaceous land, 321.2 acres of agricultural land, 287.5 acres of upland shrub/forest land, 95.5 acres of emergent wetlands, and 111.3 acres of shrub/forested wetlands within the permanent easement would be restored to pre-construction conditions but would be subject to routine maintenance; 6.5 acres of water within the permanent right-of-way would not be subjected to routine maintenance. Shrub/forest land within maintained portions of the permanent right-of-way would be permanently converted to herbaceous or early successional-stage scrub-shrub land. Pipeline 2 would be installed within the same right-of-way as Pipeline 1. Similar to impacts at the LNG Terminal, wildlife would experience displacement, stress, and direct mortality during construction of the pipeline facilities; however, most impacts would be restricted to periods of active construction and the habitat would re-establish over time after construction had been completed, with the exception of aboveground facilities and the permanent right-of-way, which would be periodically maintained.

The proposed Project is within the migratory bird Central Flyway, which generally covers the central portion of North America and into Central America. South Texas acts as a funnel for migratory birds as they try to avoid flying too far east (into open Gulf waters) or west (into desert habitat). RG LNG proposes measures to avoid or minimize impacts on migratory birds and has developed a MBCP outlining the measures that it would implement, as practicable, during construction of the Project; RB Pipeline would also implement measures in this plan if vegetation clearing along the Pipeline System would take place during the bird nesting period between March 1 and August 31. Because of the high use of habitat at the LNG Terminal by migratory birds (including birds of conservation concern), we agree that the measures in RG LNG's MBCP are appropriate and we recommend that the plan be finalized in consultation with the FWS and TPWD. We have also determined that the overall increase in nighttime lighting during operation of the proposed Project would result in permanent, but minor impacts on resident or migratory birds.

Sensitive or management wildlife habitat in the vicinity of the Project includes the Laguna Atascosa and Lower Rio Grande Valley NWRs. Operational noise at the LNG Terminal would increase ambient noise in adjacent areas of the Laguna Atascosa NWR, which could result in moderate impacts on wildlife through increased avoidance; however, no significant changes in general wildlife behaviors further within the NWR are anticipated, as noise attenuates over distance. Although the LNG Terminal would not be within 0.25 mile of the Lower Rio Grande Valley NWR, RB Pipeline is proposing two HDDs adjacent to its boundaries. Therefore, we recommend that RB Pipeline provide ambient sound levels at an HDD location adjacent to this NWR at MPs 115.6 and 116.4, and identify any necessary mitigation, prior to construction.

Loss or disturbance of vegetation decreases available habitat for pollinator species, including bats, bees, hummingbirds, butterflies, wasps, moths, and flies, that require plant pollen and/or nectar for food. RG Developers have consulted with the NRCS to develop preliminary seeding mixes for use during restoration that would enhance the habitat for pollinator species, which includes predominantly native grasses. Further, RG Developers will continue to coordinate with the Caesar Kleberg Wildlife Research Institute at the FWS' request, and have

committed to incorporating monarch butterfly-friendly species into their revegetation plan, which could provide an energy source for local and migrating pollinators.

Construction of the Rio Grande LNG Project would result in minor impacts on aquatic resources due to water quality and noise impacts and direct mortality of some immobile individuals during dredging for the LNG Terminal and installation of the Pipeline System across waterbodies. During operations, the Project would have minor impacts on aquatic resources due to maintenance dredging and increased marine vessel traffic. Permanent impacts on aquatic habitat would occur where open water would be converted to industrial/commercial land within the LNG Terminal site and where dredging would convert existing wetlands and mudflats to open water. Impacts on aquatic resources due to increased turbidity and suspended solid levels would vary by species; however, the aquatic resources present within the Project area are likely accustomed to regular fluctuations in noise and turbidity levels from maintenance dredging within the BSC. To minimize impacts on aquatic resources due to increased turbidity and suspended solid levels, RG LNG would use equipment designed to meet Texas state water quality standards and in accordance with applicable COE permit requirements which include turbidity minimization methods as well as avoidance of adverse effects to water quality and aquatic resources. Further, in accordance with the TPWD's recommendations on the draft EIS (and per section V.B.1 of FERC's Plan), RB Pipeline must cross all waterbodies with perceptible flow between November 1 and January 31, unless further approval from the TPWD is obtained. With the implementation of these permit requirements and mitigation measures, we have determined that the Project would have temporary and minor impacts on fisheries and aquatic resources.

Portions of the BSC, the channel to San Martin Lake, the Bahia Grande Channel, and the water column at potential dredged material disposal sites have been designated as EFH. Although the construction activities would result in the alteration of habitat and the mortality or displacement of individuals, the impacts on EFH and the species and life stages that utilize EFH would be temporary and minor. Consultation under the MSFCMA is complete, and given the temporary, minor impacts on EFH, NMFS does not have EFH conservation recommendations for the Project.

5.1.7 Threatened, Endangered, and Other Special-status Species

A total of 25 species that are federally listed as threatened or endangered, or those that are candidates, proposed, or under review for listing, may occur in counties affected by the Project. Within these counties, or offshore of them, critical habitat has been designated for two species, the piping plover and the loggerhead sea turtle. We determined that the Project would have *no effect* on one federally listed and one candidate species, is *not likely to adversely affect* 19 federally listed (or proposed) species, and would *not result in a trend towards federal listing* for two species (one candidate and one that is under review). We have also determined that the Project would not be likely to destroy or adversely modify designated critical habitat for the piping plover or loggerhead sea turtle. Our *not likely to adversely affect* determinations for the West Indian manatee and federally listed plants are based on our recommendations to conduct appropriate training and complete applicable surveys, respectively. Similarly, our *not likely to adversely affect* determination for the northern aplomado falcon is based on our recommendations related to nest identification, monitoring, and implementation of BMPs for the

species, but also accounts for its coverage under a Safe Harbor Agreement that allows development (and take) in the Project area. RG Developers have committed to multiple mitigation measures for the protection of federally and state listed species (e.g., implementing biological monitors, following agency recommended BMPs); we have also recommended that RG Developers file documentation demonstrating that such measures have been incorporated into their environmental training program.

We have determined that the Project *is likely to adversely affect* the ocelot and jaguarundi based on direct and indirect habitat impacts, and consideration of how those habitat impacts would affect the recovery of the species. RG Developers are consulting with the FWS regarding potential mitigation for the ocelot; final mitigation requirements would be determined by the FWS in its Biological Opinion and through completion of the ESA Section 7 consultation process. Because consultation with the FWS and NMFS is ongoing, we recommend that the FERC staff completes any necessary ESA consultation with these agencies prior to construction.

In consultation with the TPWD and review of county species lists, we identified 30 species that are state listed as threatened or endangered with the potential to occur in the Project area. RB Pipeline has proposed use of the Texas Tortoise BMPs during construction to minimize the potential for impacts on the species; however, as the Texas tortoise was identified during surveys on the LNG Terminal site, we note that RG Developers may need to work with the TPWD to mitigate potential impacts on this species. Further, we recommend that RG Developers work with the TPWD to identify locations of sensitive habitat that may warrant the restriction of certain erosion control materials to minimize the potential for species entanglement. With implementation of RG Developers' Plan and Procedures, SWPPPs, and SPCCs, we have determined that state listed species would not be significantly affected by the Project. In addition, dolphins, which are protected under the MMPA, may be affected by noise produced by in-water pile-driving at the LNG Terminal site. Although RG LNG has minimized this potential by restricting in-water pile-driving to just four conventional piles and one sheet pile, we recommend that RG LNG consult with the NMFS to identify mitigation measures to avoid or minimize noise-related impacts from in-water pile-driving.

5.1.8 Land Use, Recreation, and Visual Resources

Construction of the Rio Grande LNG Project would occur predominately on large tracts of land classified as open land with scrub-shrub vegetation and would affect about 3,633.2 acres of open land, shrub/forest land, agricultural land, barren land, emergent wetlands, open water, and industrial/commercial land. About 2,149.2 acres of the affected area would be maintained for operation of the Project. A portion of the Project is within the designated coastal zone, which is managed by the RRC. We recommend that RG Developers file documentation of concurrence from the RRC that the Project is consistent with the Texas CZMP.

RG Developers would construct the Project across or near several recreation areas, including a National Historic Landmark (King Ranch); the Lower Rio Grande Valley and Laguna Atascosa NWRs; the Zapata boat launch; land planned for conservation through the Bahia Grande Coastal Corridor Project; four Great Texas Coastal Birding Trails; and three conservation easement areas under the CRP. The pipelines would directly affect each of these recreation areas, except for the Laguna Atascosa and Lower Rio Grande Valley NWRs.

However, construction of the Pipeline System would last a few weeks in any one area, except at 19 discrete locations along the Pipeline System (including areas adjacent to recreation/special use areas) where up to 10 weeks would be required for crossings accomplished by HDD; therefore, impacts would be temporary.

In addition to the special use areas, recreational boating and fishing activities occur within the BSC, Bahia Grande Channel, and San Martin Lake and could be affected by construction and operation of the LNG Terminal due to increased noise, restrictions on fishing in the immediate vicinity of the LNG Terminal, and LNG and barge vessel traffic. Increased noise associated with construction of the Project could deter recreational users from fishing in the immediate vicinity of Project activities. In particular, dredging activities, which would take place 24 hours per day, 7 days per week, during a two-week period; and land- and water-based pile-driving which would occur at discrete points during construction for periods as short as a few days to as long as five months, could result in avoidance of these areas by recreational users. In addition, construction of the Pipeline System across the Zapata boat launch would be accomplished by HDD, and could take up to 10 weeks. As a result, we have determined that there would be moderate impacts on recreational use of the Zapata boat launch during construction of the Pipeline System.

The nearest residential areas to the LNG Terminal are in Port Isabel and Laguna Heights, Texas, (about 2.2 miles north and northeast, respectively). Views of the LNG Terminal would generally be associated with mobile receptors such as motorists on SH-48, and boaters on the BSC or in the Bahia Grande Channel; these receptors may experience moderate impacts on the viewshed from the presence of the LNG Terminal. RG LNG's siting of the LNG Terminal along the BSC, which supports the movement of domestic and foreign products, and in proximity to the Port of Brownsville, result in it being consistent with current industrial use. Lighting at the LNG Terminal would be minimized to the extent practicable to maintain safe working conditions.

Numerous public comments identified concerns with the visual impact of the LNG Terminal to surrounding communities, specifically including Port Isabel and South Padre Island. Based on our review of visual simulations conducted by RG LNG, most public vantage points (e.g., the Port Isabel lighthouse, historic battlegrounds/landmarks, Isla Grand Hotel) are at a distance far enough away from the LNG Terminal site that impacts on the viewshed would be permanent, but negligible or minor. Visual receptors within nearby waters north of the LNG Terminal site, such as Laguna Madre, would be at lower elevations and/or far enough away such that the nearby shoreline areas would obscure the LNG Terminal site. Visual receptors at locations closer to the LNG Terminal site (e.g., SH-48, the Bahia Grande Channel, and the Zapata boat launch), would be able to discern individual structures; however, these receptors would generally not be stationary and therefore would have a short viewing time (i.e., until the vehicle or vessel passes the site). Based on these considerations, we conclude that the visual impact of the LNG Terminal would be permanent, but negligible to moderate, dependent on the elevation and proximity of the viewers.

Given the siting of the Pipeline System on larger tracts of land, no planned residential developments would be within 0.25 mile, and no residences are within 50 feet of proposed construction work areas. Although three residences are within 50 feet of proposed access roads;

these roads are existing and would be used without modification. RB Pipeline would affect visual resources along the pipeline route by vegetation clearing along the right-of-way and construction of the pipeline facilities. Visual impacts on the greatest number of people would occur where the pipeline route parallels or crosses roads, trails, or prominent offsite observation points and other places where the right-of-way may be seen by passing motorists or recreationists. The presence of construction personnel and equipment would result in short-term impacts on the viewshed of those areas. Although clearing of shrub/forest land would result in minor long-term and permanent impacts on the viewshed, we conclude that the visual character would not change substantially from existing conditions given the presence of other oil and gas pipeline easements throughout the Project area and RB Pipeline's effort to site the pipelines within or directly adjacent to existing pipeline corridors (about 66.0 percent of the route). Similarly, although passing motorists may be able to view Compressor Station 2 from U.S. Highway 77, we conclude that there would be no significant impacts on visual resources at Compressor Stations 1 and 2 given the distance to the nearest residences (2.9 miles or greater).

5.1.9 Socioeconomics

Construction of the Rio Grande LNG Project would generally have a minor impact on local populations, employment, housing, provision of community services, and property values. There would not be any disproportionately high or adverse environmental and human health impacts on low-income and minority populations from construction or operation of the Project. No residences or businesses would be displaced as a result of construction or operation of the LNG Terminal or pipeline facilities.

Construction of the LNG Terminal would occur in phases over a 7-year period. RG LNG expects an average monthly construction workforce of 2,950 workers would be required, with a peak workforce of 5,000 workers during a 17-month period. About 30 percent of the workforce is expected to be hired locally, resulting in on average 2,065 non-local workers and a maximum of 3,658 non-local workers. Assuming non-resident workers would be accompanied by family members, and based on the average household size in Texas, up to 10,058 non-local persons and family members could relocate to the affected area during construction of the LNG Terminal, which would represent a 0.8 percent increase in the total population within Cameron, Willacy, and Hidalgo Counties. Given the number of housing units that we estimate would be available for rent to the workforce (75,406 units), no serious disruptions to housing and temporary accommodations are anticipated. Operation of the LNG Terminal would require 108 workers, all of which are expected to be non-local hires.

RB Pipeline estimates the average monthly workforce would be 1,240 workers, with a peak of 1,500 workers, during the first two stages of construction, which would last about 12 months. The workforce would be concentrated near the compressor stations with an average monthly workforce of 160 workers each (including Compressor Station 3); the remaining workers would be separated into two construction spreads along the Header System and Pipeline 1. Stages 3 through 6 would require smaller workforces, estimated to be 240 workers each month on average with 300 workers at the peak of construction efforts.

RB Pipeline estimates that about 10 percent of the workers for the pipeline facilities would be hired locally. Based on the expected peak construction workforce, the addition of

1,350 non-local workers would result in a negligible increase in the affected area's population (0.003 percent). Within the affected area for the pipeline facilities, a total of 38,212 housing units would be available for rent to the workforce, including hotel and motel rooms, vacant housing units, and RV sites. This inventory of housing units indicates that sufficient lodging units would be available to accommodate the non-resident workers. Twenty permanent workers, including three to four staff at each compressor station, would be required for operation of the pipeline facilities. This workforce and their families would represent a permanent but minor increase in the local population and housing requirements.

Impacts on roadways in the Project area would include potential delays from increased traffic levels and diminished roadway capacity. To identify, quantify, and recommend mitigation for traffic impacts on area roadways during construction of the Rio Grande LNG Project, RG Developers commissioned a *Traffic Impact Analysis*, which recommended several improvements to safely accommodate access to the LNG Terminal, as well as strategic scheduling of deliveries and arrival/departure of construction workers to limit congestion. RG LNG committed to the measures recommended in the *Traffic Impact Study*, as well as hiring off-duty police officers to direct traffic during peak commuting hours and installing roadway warning signs to notify travelers of construction activities. To further minimize impacts on traffic congestion, we recommend that, prior to the end of the draft EIS comment period, RG Developers develop traffic monitoring and mitigation procedures in consultation with applicable transportation authorities. Additionally, if onsite parking becomes limited RG LNG would be provided offsite parking at a 25-acre Port of Brownsville temporary storage area on the south side of SH-48. Construction workers would be bused from this location to the LNG Terminal site. With the implementation of the proposed measures, we have determined that impacts from construction of the LNG Terminal would have temporary and minor impacts on local users of the roadway network.

Marine barge transportation would supplement truck transport for delivery of construction materials to the LNG Terminal site. RG LNG anticipates about 880 barge deliveries over the 7-year construction period for the LNG Terminal site, which represents a 25 percent increase in the current barge traffic. In addition to increased vessel traffic during construction, dredging for the marine facilities would temporarily reduce the area of the BSC available for vessel transit. RG LNG would coordinate with local authorities so that dredging activity would not restrict large vessels from transiting the BSC during the limited period for which this activity would be required. The additional vessels in the BSC during construction would not result in an exceedance of the channel's traffic capacity. Based on these considerations we anticipate that the overall impact on recreational boating and fishing would be minor.

The BSC currently experiences about six large vessels per week (i.e., about two transits per day) calling at the Port of Brownsville, including cargo vessels, tankers, and ocean barges. During operation of the Project, about 312 LNG carriers would call on the LNG Terminal per year, or about 6 per week. In a letter dated December 26, 2017, the Coast Guard issued the LOR for the Project, which stated that the BSC is considered suitable for LNG marine traffic in accordance with the guidance in the Coast Guard's NVIC 01-2011. The WSA review focused on the navigation safety and maritime security aspects of LNG carrier transits along the BSC. The WSA itself is designated Sensitive Security Information as defined in 49 CFR 1520. Because

any unauthorized disclosure of these details could be employed to circumvent the proposed security measures, they are not releasable to the public. Based on the Coast Guard's LOR for the Project, the expected doubling in large vessel traffic, and the potential to preclude vessel traffic 30 hours per week, we have determined that operation of the LNG Terminal would result in a permanent and moderate increase in marine traffic within the BSC, based on current conditions.

Construction of the pipelines would increase traffic on roadways, most notably during the first year of construction. Use of a segment of FM 106 in Cameron County during construction of the pipeline facilities was not recommended per the findings of the *Traffic Impact Analysis*; however, RB Pipeline has stated that it would use FM 106. To further minimize impacts on traffic congestion, we recommend that, prior to the end of the draft EIS comment period, RG Developers identify traffic mitigation procedures in consultation with applicable transportation authorities.

Construction of the Rio Grande LNG Project would result in positive impacts due to increases in construction jobs, payroll taxes, purchases made by the workforce, and expenses associated with the acquisition of material goods and equipment. Operation of the Project would have a positive effect on the local governments' tax revenues due to the increase in property taxes that would be collected.

5.1.10 Cultural Resources

To date, our responsibilities under Section 106 of the NHPA have not been completed and are pending the completion of all outstanding cultural resources surveys and subsequent review of the resulting reports and/or plans by FERC staff and the SHPO. We recommend that RG Developers file documentation of consultation with the SHPO, NPS, and Advisory Council on Historic Preservation prior to construction to ensure the FERC's responsibilities under Section 106 are met. Surveys conducted through 2016 cover about 56 percent of the current pipeline facilities (including the pipeline route, access roads, aboveground facilities, and contractor/pipe yards). Some areas along pipeline re-routes have been surveyed since that time, but landowner access for surveys along the entire Project has not been granted. Surveys have been completed for the entire LNG Terminal site, including 4.5 miles of the non-jurisdictional BND Utility Corridor, 2.9 miles of SH-48 turning lanes, the two offsite storage/parking areas, and a 1.3-mile-long section of the 1.8-mile-long temporary haul road (this haul road is no longer being proposed for use).

Surveys for the remainder of the pipelines (including along the Header System) remain incomplete due to access restrictions. This includes approximately 30 miles of the Project that crosses the King Ranch National Historic Landmark. These surveys will be completed once access is obtained.

RG Developers have conducted viewshed and noise impacts assessments of two National Historic Landmarks, including the Palmito Ranch Battlefield and the Palo Alto Battlefield, and concluded that due to distance and topography, visual impacts would be moderate and minor, respectively. They also concluded that the Project would have no noise impacts on the National Historic Landmarks.

RG Developers contacted seven Native American tribes with requests for consultation; four responded with requests to review survey reports and to be notified in the event of unanticipated discoveries, including human remains. We sent our NOI and follow-up letters to the same tribes; no responses were received. RG Developers requested comments from 13 other parties, including local historic preservation groups and museums. Of these groups, three responded. No concerns were expressed by any of the responding organizations.

RG Developers submitted a plan to the FERC and SHPO for addressing unanticipated discovery of cultural resources or human remains during construction. We and the SHPO requested revisions to the plan. RG Developers submitted a revised plan which we find acceptable. The SHPO concurred with the plan on November 10, 2016.

5.1.11 Air Quality and Noise

5.1.11.1 Air Quality

The Project would be located in areas currently classified as being in attainment for all criteria pollutant standards. Air pollutant emissions during construction of the Project would result from the operation of construction vehicles, marine traffic, vehicles driven by construction workers commuting to and from work sites, and fugitive dust generated during construction activities. Air quality impacts due to construction would generally be localized, and are not expected to cause or contribute to a violation of applicable air quality standards. Combustion emissions during construction at the LNG Terminal site would occur over a longer period than construction of the pipeline facilities. RG Developers would minimize combustion emissions by using bus transportation during construction, limiting engine idling, using recent models of construction equipment, and conducting regular inspections of construction vehicles. Fugitive dust emissions would be minimized through implementation of RG Developers' Fugitive Dust Control Plans. Based on our independent review of the analyses conducted and mitigation measures proposed, we conclude that construction of the Project would result in elevated emissions near construction areas and would impact local air quality. However, construction emissions would not have a long-term, permanent effect on air quality in the area.

The LNG Terminal (including Compressor Station 3) would be a PSD major source and a Title V major source for certain criteria pollutants, HAPs, and GHGs. On March 21, 2017, RG Developers submitted a revised application to the TCEQ for a PSD permit for the LNG Terminal and Compressor Station 3, and the TCEQ issued an Order granting the PSD permit on December 17, 2018. The results of ambient pollutant concentration modeling and ozone modeling conducted by RG Developers and the TCEQ show that the LNG Terminal and Compressor Station 3 would not cause or significantly contribute to an exceedance of the NAAQS. In addition, the results of the State Health Effects modeling evaluation required by the TCEQ for the LNG Terminal indicate that the Project emissions are below applicable effects screening levels, and therefore adverse health effects are not expected. However, concurrent emissions from staged construction, commissioning and start-up, and operations of the LNG Terminal would temporarily impact local air quality and could result in exceedances of the NAAQS in the immediate vicinity of the LNG Terminal during these construction years. These exceedances would not be persistent at any one time during these years due to the dynamic and fluctuating nature of construction activities within a day, week, or month. RG Developers would minimize

air quality impacts by adhering to applicable federal and state regulations and installing BACT as described in their PSD permit application to meet the emissions limitations required by the TCEQ. RG Developers plan to submit the Title V permit application for the LNG Terminal and Compressor Station 3 prior to beginning construction.

Compressor Stations 1 and 2 and Booster Stations 1 and 2 would require state minor source permits for all criteria pollutants; RB Pipeline submitted state permits for these facilities on March 24, 2017, and the permits were approved in June 2017. In addition, Compressor Stations 1 and 2 would be Title V major sources for NO_x and CO. RB Pipeline would minimize potential impacts on air quality due to operation of the aboveground facilities by adhering to applicable federal and state regulations as described in its air permit applications.

Based on our independent review of the analyses conducted and mitigation measures proposed, we conclude that operation of the Project would have minor impacts on local and regional air quality. However, given the mitigation measures proposed by RG Developers, and air quality controls and monitoring requirements that would be included in the Title V/Prevention of Significant Deterioration permits/state minor source permits for the facilities, the Project would not result in regionally significant impacts on air quality.

5.1.11.2 Noise

Construction activities at the LNG Terminal would generate increased noise levels over a period of about 7 years. Construction activities would occur predominantly during the day, between 7:00 a.m. and 7:00 p.m., Monday through Friday, and site preparation and construction activities (including pile-driving) would be limited to daytime hours. However, dredging may be conducted up to 24 hours per day, 7 days per week. The most prevalent noise-generating equipment and activity during construction of the LNG Terminal is anticipated to be pile-driving, although internal combustion engines associated with general construction equipment would also produce noise that is perceptible at the nearest NSAs. RG LNG plans to use both impact-type and vibratory pile-drivers during each stage of construction of the LNG Terminal, and pile-driving would be conducted both on-land and in-water. During the first stage (including LNG Train 1 and related offsite utilities), land-based pile-driving would require up to 165 days; each subsequent stage of construction and water-based pile-driving would require less time.

The highest expected sound level from pile-driving would occur at nearby NSA 3 when three impact pile-driving platforms are simultaneously in use for installation of the marine berths (56.4 dBA L_{max} at a distance of about 2.8 miles). This level corresponds to a quiet to moderate sound level, and would result in an 11 dB increase over ambient sound levels at NSA 3. As a result, we recommend that RG LNG monitor pile-driving, file weekly noise data, and implement mitigation measures in the event that measured noise impacts are greater than 10 dB over ambient levels at nearby NSAs. Estimated noise levels for site preparation and facility construction (including intermittent pile-driving during which all three pile-drivers do not operate simultaneously) are not estimated to result in significant impacts on NSAs in the LNG Terminal vicinity.

Installation of the pipeline facilities would include noise from internal combustion engines associated with typical pipeline and aboveground facility construction, as well as HDD

activities. While most construction activity would take place during daytime hours, RB Pipeline indicated that some specialized construction activities could occur at night (between 10 p.m. and 7 a.m.).

RB Pipeline conducted an HDD acoustical impact assessment, which found that sound levels for 24-hour HDD operations would exceed FERC's noise criterion of a day-night noise level of 55 dB on the A-weighted scale at NSAs near seven proposed HDDs. While RB Pipeline has identified potential mitigation measures to reduce sound levels during HDD construction, the site-specific measures that it would implement at each location have not been identified. Therefore, we recommend that RB Pipeline prepare a noise mitigation plan for HDDs at MPs 82.0, 92.0, 93.0, 99.8, 101.2, 102.0, and 118.7, which would exceed FERC's noise requirement at the nearest NSAs, and that these plans be implemented during construction.

Typical pipeline installation and facility construction would be temporary at a given location; however, construction at Compressor Stations 1 and 2 would occur in stages over several years. During construction activities, the composite sound level at the NSA nearest to Compressor Station 1 is estimated to be 42.7 L_{eq} (dBA). The recently monitored daytime sound level at this NSA is 38.3 dBA L_{eq} , and the combined ambient and construction sound levels would be 44.1 dBA, a 5.8 dB increase above ambient levels. Construction of Compressor Station 2 would not result in an increase above ambient levels at the nearest NSA. Noise levels would be below the FERC criterion of 55 dBA at both locations.

Operation of the LNG Terminal, and compressor, meter, and booster stations would produce noise on a continual basis during the lifetime of the Project. The results of the noise impact analysis indicate that the noise attributable to construction and operation of the LNG Terminal would be lower than the FERC noise level requirement at the nearest NSAs and the Palmito Ranch Battlefield (between 3.7 and 5.4 miles from the LNG Terminal site), and the predicted increases in ambient noise would be below perceptible levels (between 0.1 and 0.4 dB). To ensure that NSAs are not significantly affected by noise during operation of the LNG Terminal, we recommend that RG LNG conduct post-construction noise surveys after each after each noise-producing unit (e.g. each liquefaction train and compressor) is placed into service and once the entire LNG Terminal (including Compressor Station 3) is placed into service. If the noise attributable to operation of the equipment at the LNG Terminal exceeds the FERC threshold at any stage, RG LNG should file a report on what changes are needed and should install additional noise controls to meet the level within 1 year of the in-service date. RG LNG should confirm compliance with these requirements by filing an additional noise survey no later than 60 days after it installs the additional noise controls.

The results of the noise impact analysis conducted for the compressor and booster stations indicates that operation of these facilities would not generate noise that exceeds FERC sound level requirements or results in an increase in ambient sound levels at the nearest NSAs. To further ensure that NSAs are not significantly affected by noise during operation of the pipeline facilities, we recommend that RB Pipeline conduct post-construction noise surveys after each compressor unit is placed into service, as well as after the completed stations are operational. No NSAs are within 1 mile of the stand-alone meter stations proposed for the Project; therefore, operation of these facilities is not expected to result in perceptible noise impacts at any NSAs.

While construction of the Rio Grande LNG Project would result in localized minor to moderate elevated noise levels near construction areas, impacts would be limited to the construction period for the Project. During operations, noise impacts would be minor at the aboveground facilities along the Pipeline System and at the NSAs in the vicinity of the LNG Terminal. Based on the analyses conducted, mitigation measures proposed, and with our additional recommendations, we conclude that construction and operation of the Project would not result in significant noise impacts on residents and the surrounding communities.

5.1.12 Reliability and Safety

As part of the NEPA review, Commission staff assessed the potential impact to the human environment in terms of safety and whether the proposed facilities would operate safely, reliably, and securely.

As a cooperating agency, the DOT advises the Commission on whether RG LNG's proposed design would meet the DOT's 49 CFR Part 193 Subpart B siting requirements. On March 26, 2019, the DOT provided an LOD on the Project's compliance with 49 CFR Part 193 Subpart B. This determination was provided to the Commission for consideration in its decision on the Project application. If the Project is authorized, constructed, and operated, the facility would be subject to the DOT's inspection and enforcement program; final determination of whether a facility is in compliance with the requirements of 49 CFR 193 would be made by the DOT staff.

Furthermore, DOT's 49 CFR 192 requirements would apply to the VCP that is routed through the northern part of the LNG Terminal site. FERC staff has evaluated the potential risk and impact from an incident on the VCP. Based on PHMSA's incident data, the likelihood of a pipeline incident or failure would be low, and a worst-case pipeline rupture scenario would be even less likely. If a pipeline incident were to occur, the likely consequences from these cascading effects would not reach the public. To protect the VCP during construction and operation of the Project, RG LNG has identified extra protective measures, and we have made additional recommendations regarding temporary and permanent crossings. Therefore, FERC staff does not believe the proposed Project would significantly increase the risk to offsite public.

As a cooperating agency, the Coast Guard also assisted the FERC staff by reviewing the proposed LNG Terminal and the associated LNG marine carrier traffic. The Coast Guard reviewed a WSA submitted by RG LNG that focused on the navigation safety and maritime security aspects of LNG carrier transits along the affected waterway. On December 26, 2017, the Coast Guard issued an LOR to FERC staff indicating the BSC would be considered suitable for accommodating the type and frequency of LNG marine traffic associated with this Project, based on the WSA and in accordance with the guidance in the Coast Guard's NVIC 01-11. If the Project is authorized constructed, and operated the LNG Terminal would be subject to the Coast Guard's inspection and enforcement program to ensure compliance with the requirements of 33 CFR 105 and 33 CFR 127.

As a cooperating agency, the FAA assisted FERC staff in evaluating impacts on and from the SpaceX rocket launch facility in Cameron County. Specific recommendations are included to address potential impacts from rocket launch failures on the Project. However, the extent of

impacts on SpaceX operations, the National Space Program, and to the federal government would not fully be known until SpaceX submits an application with the FAA requesting to launch, and whether the LNG Terminal is under construction or in operation at that time.

FERC staff conducted a preliminary engineering and technical review of the RG LNG design, including potential external impacts based on the site location. Based on this review, we recommend a number of mitigation measures and continuous oversight prior to initial site preparation, prior to construction of final design, prior to commissioning, prior to introduction of hazardous fluids, prior to commencement of service, and throughout life of the LNG Terminal, in order to enhance the reliability and safety of the terminal to mitigate the risk of impact on the public. With the incorporation of these mitigation measures and oversight, we conclude that RG LNG's terminal design would include acceptable layers of protection or safeguards that would reduce the risk of a potentially hazardous scenario from developing into an event that could impact the offsite public.

The Pipeline System and associated aboveground facilities would be constructed, operated, and maintained in compliance with DOT standards published in 49 CFR 192. These regulations are intended to minimize the potential for natural gas facility accidents and protect the public and environment. The DOT specifies material selection and qualifications; minimum design requirements; and protection from internal, external, and atmospheric corrosion. We conclude that the Pipeline System would not have a significant impact on public safety.

5.1.13 Cumulative Impacts

We considered the potential contributions of the Project to cumulative impacts in specific cumulative impact areas for the affected resources. As part of that assessment, we identified existing projects, projects under construction, projects that are proposed or planned, and reasonably foreseeable projects—including future LNG liquefaction and export projects, currently operating and future oil and gas projects, electric transmission and generation projects, land transportation projects, commercial developments, waterway improvement projects, and other miscellaneous activities. Our assessment considered the cumulative impacts of the proposed Project combined with the impacts of other projects on resources within all or part of the same area and timeframe.

As discussed in detail in section 4.13 and as summarized in sections 5.1.1 through 5.1.12, due to measures to minimize effects on environmental resources, mitigation measures, laws and regulations protecting environmental resources, and permitting requirements on the Rio Grande LNG Project and other projects, the potential for the LNG Terminal and pipeline facilities to contribute moderate to significant cumulative impacts is not anticipated for the following environmental resources: geology, groundwater, wetlands, cultural, land use, recreation, socioeconomics (except land- and water-based transportation, tourism, and commercial fisheries), and safety. Cumulative impacts for the remaining resources are further summarized below.

Construction of the proposed Project, the Texas LNG Project, and the non-jurisdictional facilities for both projects are anticipated to occur concurrently and on immediately adjacent lands, which would result in soil disturbance in succession. The Annova LNG Terminal would

be on the south side of the BSC, thus it would not contribute to cumulative impacts on soils. Collectively the Rio Grande LNG and Texas LNG Projects would contribute to moderate, permanent impacts on soils due to prolonged and delayed revegetation and the potential for increased runoff and erosion from unstable soils. Similarly, if dredging were to occur in the BSC for multiple projects at the same time, moderate, but temporary, impacts on water quality and aquatic resources may occur.

The greatest potential for cumulative impacts associated with surface water resources for the Rio Grande Project is associated with dredging activities (initial and maintenance) and vessel traffic in the BSC. Moderate to significant impacts on surface water quality specifically within the BSC could occur during concurrent dredging for the Brownsville LNG terminals due to increases in turbidity and sedimentation, and from the potential erosion of shorelines along unarmored portions of the BSC due to the increase in large LNG carriers persistently transiting the BSC. The Rio Grande LNG Project and other projects would be required to comply with the CWA to minimize impacts on surface water quality and to avoid, minimize, or mitigate wetland impacts. Therefore, while the proposed Project would contribute to cumulative impacts on surface water and wetlands, along with other projects in the area, this impact would not be significant.

The Rio Grande LNG Project and most of the other projects we identified (including, but not limited to Texas LNG and Annova LNG) would be constructed partially or wholly within the HUC-12 watershed, which is the geographic scope for vegetation, wildlife, aquatic species, and threatened and endangered species. Due to the relatively large proportion of the HUC-12 subwatershed that would be affected by the projects considered, as well as the low revegetation potential of the local soils, we have determined that the LNG Terminal would contribute to moderate cumulative impacts on rare plant communities and vegetation. This impact on vegetation would also contribute to moderate impacts on wildlife species using the vegetation communities. Federally listed threatened and endangered species that may be subjected to moderate to significant cumulative impacts include sea turtles (moderate), from the combined construction impacts associated with dredging and in-water pile-driving; the northern aplomado falcon (significant), because of past cumulative habitat loss and construction of aboveground structures adjacent to areas of remaining habitat; and the ocelot and jaguarundi (significant), from the loss and/or decrease in suitability of habitat and the potential increase in vehicular strikes during construction. All federally regulated projects, including all three of the proposed LNG projects along the BSC, are required to coordinate with the FWS to minimize impacts on federally listed species.

Construction of the Rio Grande LNG Project and the other projects within the geographic scope would result in increased land- and water-based traffic within common transportation corridors and during the period(s) when construction activities overlap. Specifically, the construction of the proposed LNG Terminal and the Texas LNG Project would result in a substantial increase in daily vehicle trips on SH-48. Both RG LNG and Texas LNG have agreed to make improvements to SH-48 to ensure safe movement of traffic along the road, especially during peak hour traffic flows. Further, RG LNG has committed to hiring off-duty police officers to direct traffic during peak commuting hours and would provide off-site parking for construction personnel. Based on the results of the commissioned studies for the proposed Project and Texas LNG, in conjunction with RG LNG's proposed roadway improvements, the

Rio Grande LNG Project and other projects would contribute to a moderate cumulative impact on roadways during the 7-year construction period. The greatest cumulative impacts would result during concurrent construction of the Rio Grande LNG and Texas LNG terminals.

The potential for cumulative visual impacts would be greatest if, in addition to the proposed LNG Terminal, the Annova LNG and Texas LNG Projects are permitted and built concurrently. Motorists on SH-48 (and other local roadways) and visitors to local recreation areas would experience a permanent change in the existing viewshed operation of the projects and we conclude that cumulative impacts of the three LNG projects on visual resources would be potentially significant.

All three LNG Projects are proposing use of the BSC during construction and operation, which would likely result in a cumulative impact on marine vessel traffic flow and would likely increase vessel travel times due to congestion. During operations, LNG carriers calling on the Rio Grande LNG Terminal and other LNG facilities along the BSC may have moving security zones that could preclude other vessels from transiting the waterway for up to 39 hours per week. Mandates for prior notice of expected arrivals would minimize impacts on other vessels. As a result, we conclude that there would be a moderate cumulative impact on marine vessel traffic in the BSC during from overlapping construction and operation.

Although the land proposed to be developed for the three Brownsville LNG projects is zoned for industrial use, the concurrent construction and operation of three large industrial facilities would result in change of the character of the landscape that could cause some visitors to choose to vacation elsewhere or alter their recreation activities to destinations in the region that are further from the Brownsville LNG project sites. In addition, increased vessel traffic resulting from the concurrent operation of the three Brownsville LNG projects would likely result in delays for commercial fishing and recreational vessels that need to transit the BSC. Therefore, we anticipate that cumulative impacts on tourism and commercial fisheries would be permanent and moderate.

With other projects in the geographic scope, construction of the Rio Grande LNG Project would contribute to localized moderate elevated emissions of criteria pollutants near construction areas during the period(s) when construction of these activities would overlap. Operational air emissions from the Rio Grande LNG Project would contribute to cumulative emissions with other projects in the geographic scope, and would be required to comply with applicable air quality regulations. Overall, impacts from the Rio Grande LNG Terminal along with the other LNG facilities would cause elevated levels of air contaminants in the area and a potential exceedance of the 1-hour NO₂ NAAQS in an uninhabited area between the proposed LNG project facilities. We are aware that each LNG Terminal could be constructed within the same time period, and the concurrent construction, commissioning, and operations emissions of the proposed Brownsville LNG terminals could potentially exceed the NAAQS in local areas, and result in cumulatively greater local air quality impacts. Along the Rio Bravo Pipeline, no compressor or booster stations would trigger PSD major source permitting requirements for any pollutants and would not cause or contribute to a NAAQS exceedance. Therefore, cumulative impacts on regional air quality as a result of the operation of the Rio Grande LNG Project and other facilities would be long-term during the operational life of the Project, but minor.

The Rio Grande LNG Project would emit GHGs. Currently, there is no universally accepted methodology to attribute discrete, quantifiable, physical effects on the environment to Project's incremental contribution to GHGs. Absent such a method for relating GHG emissions to specific resource impacts, we are not able to assess potential GHG-related impacts attributable to this Project. Additionally, we have not been able to find any GHG emission reduction goals established either at the federal level⁹¹ or by the State of Texas. Without either the ability to determine discrete resource impacts or an established target to compare GHG emissions against, we are unable to determine the significance of the Project's contribution to climate change.

For simultaneous construction activities at all of the three LNG projects proposed along the BSC, the predicted sound level increase over the existing ambient ranges from 2.2 to 9.8 dBA L_{dn} at certain NSAs (residences) in the general vicinity of the projects. These noise level increases result in levels slightly over 55 dBA L_{dn} , and range between less than noticeable increases in ambient noise to a doubling of noise at specific NSAs. For construction activities that are not simultaneous but incremental, the predicted sound level increase ranges from 1.0 to 8.6 dBA L_{dn} at the NSAs. These increases would be minor to moderate; however, all levels would be below 55 dBA L_{dn} . For the Palmito Ranch Battlefield National Historic Landmark (4.1 miles from the Rio Grande LNG Project), the predicted cumulative construction increase is 10.1 dBA L_{dn} over the existing ambient level, which could result in periods of perceived doubling of noise. However, for the duration of Annova's nighttime pile-driving, significantly higher levels of noise are estimated and this would result in significant cumulative noise impacts. The only 24-hour construction proposed at the Rio Grande LNG Terminal would be dredging. As described in section 4.11.2.3, the estimated sound level from dredging associated with the Rio Grande LNG Terminal at the nearest NSAs would be below existing ambient sound levels, and noise associated with dredging activities is not expected to be perceptible. Therefore, RG LNG's contribution to cumulative nighttime construction noise would be negligible. The predicted sound level impacts for simultaneous operation of all three LNG projects are much lower than construction impacts, with potential increases over the existing ambient sound level between 0.3 and 1.5 dBA L_{dn} at NSAs, resulting in a negligible to minor impact. Construction and operation of the pipeline facilities would not contribute to significant cumulative noise impacts on nearby NSAs.

In summary, the anticipated cumulative impacts associated with the construction and operation of projects in the geographic scope are primarily construction-related dredging and pile-driving impacts in the BSC on fish and sea turtles, construction vehicle traffic on SH-48, potential direct impacts on the federally endangered ocelot and jaguarundi, and construction noise impacts on NSAs during concurrent construction. The primary operation-related cumulative impacts include marine vessel impacts on water quality and on existing marine vessel traffic in the BSC, as well as loss or degradation of vegetation that provides habitat for federally listed species. These cumulative impacts are predominantly based on concurrent construction and operation of the Rio Grande LNG, Texas LNG, and Annova LNG Projects.

⁹¹ The national emissions reduction targets expressed in the EPA's Clean Power Plan and the Paris climate accord are pending repeal and withdrawal, respectively.

5.1.14 Alternatives

In accordance with NEPA and FERC policy, we evaluated the no-action alternative, system alternatives, and other siting and design alternatives that could achieve the Project objectives. The range of alternatives that could achieve the Project objectives included system alternatives for both the terminal and pipeline, alternative LNG Terminal sites, and alternative pipeline configurations. Alternatives were evaluated and compared to the Project to determine whether these alternatives presented a significant environmental advantage to the proposed Project. While the no-action alternative would avoid the environmental impacts identified in this EIS, adoption of this alternative would preclude meeting the stated Project objectives. If the Project is not approved and built, the need could potentially be met by other LNG export projects developed elsewhere along the Texas Gulf Coast. Implementation of other LNG export projects likely would result in impacts similar to or greater than those of the proposed Project.

We evaluated seven LNG Terminal system alternatives, including four existing LNG import terminals with planned, proposed, or authorized liquefaction projects; and three proposed/planned stand-alone LNG export terminals. To meet all or part of RG LNG's contractual agreements, each of these projects would require substantial construction beyond what is currently planned and would not offer significant environmental advantages over the proposed LNG Terminal. In addition, the permitting and authorization processes for constructing additional facilities and the time required for construction would substantially delay meeting the proposed timeline for the Project. As a result, we eliminated all potential system alternatives from further consideration.

We evaluated alternative sites for the LNG Terminal along the Texas coast and along the BSC. Four alternative sites along the Texas coast were identified; however, the sites either lacked a tract size large enough to meet the needs of the Project or lacked a port system that could accommodate the deep draft LNG carriers. Along with the proposed location on the BSC, we reviewed five other sites along the BSC as alternatives. Each alternative site provided access to the deep draft LNG carriers; however, one was not an adequate size for the Project, one was not available for a long-term lease, and the other alternatives affected more resources such as wetlands and special status species. We concluded that these sites would be impractical, and they were eliminated from further consideration.

In the draft EIS we evaluated alternatives to RG LNG's proposed new haul road to bring fill material from the Port Isabel dredge pile to the terminal site. In response to our recommendation in the draft EIS, RG LNG adopted an alternative to transport the fill materials, if necessary, using barges.

We reviewed three pipeline system alternatives; however, none of the alternatives had enough available capacity to transport the Project volumes. We also reviewed the construction of one larger diameter pipeline as opposed to the two mainline pipelines, as well as concurrent construction of both pipelines, but eliminated these alternatives from further review based on construction and safety considerations. RB Pipeline reviewed potential pipeline alternatives as part of its routing process to minimize and avoid environmental impacts; however, as much of the proposed Pipeline System is collocated with existing rights-of-way and the King Ranch

National Historic Landmark cannot be fully avoided due to its size, we did not evaluate alternatives for the Pipeline System.

5.2 FERC STAFF'S RECOMMENDED MITIGATION

If the Commission authorizes the Project, we recommend that the following measures be included as specific conditions in the Commission's Order. We believe that these measures would further mitigate the environmental impacts associated with construction and operation of the proposed Project. These measures may apply to RG LNG, RB Pipeline, or to both Applicants collectively, referred to as "RG Developers."

1. RG Developers shall follow the construction procedures and mitigation measures described in their application and supplements (including responses to staff data requests) and as identified in the EIS, unless modified by the Order. RG Developers must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
 - b. justify each modification relative to site-specific conditions;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
 - d. receive approval in writing from the Director of OEP **before using that modification.**
2. For the LNG Terminal, the Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of life, health, property, and the environment during construction and operation of the project. This authority shall allow:
 - a. the modification of conditions of the Order;
 - b. stop-work authority and authority to cease operation; and
 - c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from Project construction and operation.
3. For the pipeline facilities, the Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the Project. This authority shall allow:
 - a. the modification of conditions of the Order;
 - b. stop-work authority; and

- c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from Project construction and operation.
4. **Prior to any construction**, RG Developers shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.
5. The authorized facility locations shall be as shown in the EIS, as supplemented by filed alignment sheets. **As soon as they are available and before the start of construction**, RG Developers shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

RB Pipeline's exercise of eminent domain authority granted under NGA Section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. RB Pipeline's right of eminent domain granted under NGA Section 7(h) does not authorize it to increase the size of its natural gas pipeline or facilities to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

6. RG Developers shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, contractor/pipe yards, new access roads, and other areas that will be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species will be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**.

This requirement does not apply to extra workspace allowed by the Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan* and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

- a. implementation of cultural resources mitigation measures;

- b. implementation of endangered, threatened, or special concern species mitigation;
 - c. recommendations by state regulatory authorities; and
 - d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.
7. **Within 60 days of the Order and before construction begins**, RG Developers shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. RG Developers must file revisions to the plan as schedules change. The plans shall identify:
- a. how RG Developers will implement the construction procedures and mitigation measures described in their application and supplements (including responses to staff data requests), identified in the EIS, and required by the Order;
 - b. how RG Developers will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
 - c. the number of EIs assigned per spread and/or facility, and how RG Developers will ensure that sufficient personnel are available to implement the environmental mitigation;
 - d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
 - e. the location and dates of the environmental compliance training and instructions RG Developers will give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel changes), with the opportunity for OEP staff to participate in the training session(s);
 - f. the company personnel (if known) and specific portion of RG Developers' organizations having responsibility for compliance;
 - g. the procedures (including use of contract penalties) RG Developers will follow if noncompliance occurs; and
 - h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
 - i. the completion of all required surveys and reports;
 - ii. the environmental compliance training of onsite personnel;
 - iii. the start of construction; and
 - iv. the start and completion of restoration.
8. RG Developers shall employ a team of EIs (at least one EI per stage of LNG Terminal construction and at least two EIs per pipeline spread) for the Project. The EIs shall be:

- a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
 - b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 7 above) and any other authorizing document;
 - c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
 - d. a full-time position, separate from all other activity inspectors;
 - e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
 - f. responsible for maintaining status reports.
9. Beginning with the filing of the Implementation Plan, RG Developers shall file updated status reports with the Secretary on a **monthly** basis for the LNG Terminal and a **weekly** basis for the Pipeline System until all construction and restoration activities are complete. Problems of a significant magnitude shall be reported to the FERC **within 24 hours**. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:
- a. an update on RG Developers' efforts to obtain the necessary federal authorizations;
 - b. Project schedule, including current construction status of the Project and work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally-sensitive areas;
 - c. a listing of all problems encountered, contractor nonconformance/deficiency logs, and each instance of noncompliance observed by the EIs during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
 - d. a description of the corrective and remedial actions implemented in response to all instances of noncompliance, nonconformance, or deficiency;
 - e. the effectiveness of all corrective and remedial actions implemented;
 - f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
 - g. copies of any correspondence received by RG Developers from other federal, state, or local permitting agencies concerning instances of noncompliance, and RG Developers' response.

10. RG Developers must receive written authorization from the Director of OEP **before commencing construction of any Project facilities**. To obtain such authorization, RG Developers must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).
11. RG LNG must receive written authorization from the Director of OEP **prior to introducing hazardous fluids into the Project facilities**. Instrumentation and controls, hazard detection, hazard control, and security components/systems necessary for the safe introduction of such fluids shall be installed and functional.
12. RB Pipeline must receive written authorization from the Director of OEP, **before placing each phase of the Pipeline System into service** (i.e., Header System/Pipeline 1 and associated facilities, and Pipeline 2 and upgrades to associated facilities). Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the Project are proceeding satisfactorily.
13. RG LNG must receive written authorization from the Director of OEP **before placing the LNG Terminal into service**. Such authorization will only be granted following a determination that the facilities have been constructed in accordance with FERC approval, can be expected to operate safely as designed, and the rehabilitation and restoration of the areas affected by the LNG Terminal are proceeding satisfactorily.
14. **Within 30 days of placing each of the authorized facilities in service**, RG Developers shall file an affirmative statement with the Secretary, certified by a senior company official:
 - a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
 - b. identifying which of the conditions of the Order RG Developers have complied with or will comply with. This statement shall also identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.
15. **Prior to construction of Compressor Station 2, and Booster Stations 1 and 2**, RB Pipeline shall file with the Secretary results of its geotechnical investigations and recommended site preparation and foundation designs that RB Pipeline will adopt, stamped and sealed by the professional engineer-of-record licensed in the state where the Project is being constructed, for each site, that incorporates the results of geotechnical investigations. (*section 4.1.1.1*)
16. **Prior to construction of each of the HDD locations**, RB Pipeline shall file with the Secretary, results of its geotechnical investigations for each of these sites, including any recommended mitigation measures RB Pipeline will adopt as part of the final engineering design, for review and written approval by the Director of OEP. (*section 4.1.1.1*)

17. **Prior to construction of the Project**, RG Developers shall file their final Fugitive Dust Control Plans for the LNG Terminal and Pipeline System with the Secretary, for review and written approval by the Director of OEP. The final plans shall specify that no chemicals may be used for dust control in Willacy and Cameron Counties. (*section 4.2.2.1*)
18. **Prior to construction of the Project**, RG Developers shall file with the Secretary, for review and written approval by the Director of the OEP, final versions of their SWPPPs and SPCC Plans for construction and operation of the Project, as well as the final version of the *Unanticipated Contaminated Sediment and Soils Discovery Plan*. (*section 4.2.2.1*)
19. **Prior to construction of the LNG Terminal**, RG LNG shall file with the Secretary, for review and written approval by the Director of OEP, its final LNG Tank Hydrostatic Test Plan. (*section 4.3.2.2*)
20. **Prior to construction of the Rio Bravo Pipeline through wetland WW-T04-015**, RB Pipeline shall file with the Secretary, for review and written approval by the Director of OEP, revised construction right-of-way configurations that either exclude inaccessible temporary workspace at the wetland crossing, or reconfigure the workspace so that it complies with section 6.1.3 of RG Developers' Procedures. (*section 4.4.2.2*)
21. **Prior to construction of the Rio Bravo Pipeline**, RB Pipeline shall consult with the TPWD to determine specific locations along the pipeline right-of-way that may warrant topsoil segregation based on the probable presence of rare plant species. Copies of consultation with the TPWD, along with any additional areas warranting topsoil segregation, shall be filed with the Secretary, for review and written approval by the Director of OEP. (*section 4.5.4*)
22. **Prior to construction of the LNG Terminal**, RG LNG shall consult with the TPWD and FWS to finalize nighttime lighting plans to minimize impacts on wildlife to the greatest extent practical. The final plans and copies of consultation with the agencies shall be filed with the Secretary for review and written approval by the Director of OEP. (*section 4.6.1.2*)
23. **Prior to construction of the Project**, RG Developers shall consult with the FWS and TPWD to develop a final MBCP, which shall include outstanding surveys at the Port Isabel dredge pile. RG Developers shall file the revised MBCP and evidence of consultation with the FWS and TPWD with the Secretary. (*section 4.6.1.3*)
24. **Prior to construction of the Rio Bravo Pipeline HDD crossings at MPs 115.6 and 116.4**, RB Pipeline shall file with the Secretary, for review and written approval by the Director of OEP, estimates of ambient sound levels at the boundary of the Lower Rio Grande Valley NWR near the HDDs, as well as anticipated noise impacts and any necessary mitigation to minimize potential effects on wildlife. (*section 4.6.1.4*)
25. **Prior to construction of the Project**, RG Developers shall file documentation with the Secretary, for review and written approval by the Director of OEP,

demonstrating how RG Developers' commitments (as referenced in sections 4.7.1.1, 4.7.1.2, 4.7.1.4, 4.7.2.1 and 4.7.3) to implement agency recommended monitoring, avoidance, and mitigation measures for federal and state-listed species have been incorporated into RG Developers' environmental training program. (*section 4.7.1.1*)

26. **Prior to construction of the LNG Terminal**, RG LNG shall conduct training for construction and operational employees that includes the identification, treatment, and reporting protocols for the West Indian manatee. Training materials shall be developed in coordination with the FWS. (*section 4.7.1.2*)
27. **Prior to construction of each pipeline and the LNG Terminal**, RG Developers shall file with the Secretary documentation confirming that they obtained updated records of active northern aplomado falcon nests from The Peregrine Fund for the appropriate breeding season and consulted with the FWS to determine if any additional mitigation is warranted based on the new nest data. RG Developers shall also consult with the FWS on the Project-specific northern aplomado falcon BMPs, and file with the Secretary the FWS comments and any BMP modifications, for review and written approval by the Director of OEP. (*section 4.7.1.3*)
28. **Prior to construction of the Rio Bravo Pipeline**, RB Pipeline shall file with the Secretary, the results of its completed surveys for the black lace cactus, slender rush-pea, and south Texas ambrosia as well as any comments from the FWS regarding the results. If applicable, RB Pipeline shall include in its filing avoidance/minimization measures that it will implement if individual plants are found, developed in consultation with the FWS, for review and written approval by the Director of OEP. (*section 4.7.1.6*)
29. RG Developers shall not begin construction activities until:
 - a. the FERC staff receives comments from the FWS and NMFS regarding the proposed action;
 - b. FERC staff completes ESA Section 7 consultation with the FWS and NMFS; and
 - c. RG Developers have received written notification from the Director of OEP that construction or use of mitigation may begin. (*section 4.7.3*)
30. **Prior to construction of the Project**, RG Developers shall consult with the TPWD, and file with the Secretary copies of this consultation, to specifically identify locations of sensitive habitat that may warrant the restriction of synthetic mesh/netted erosion control materials. The specific areas warranting restriction of synthetic erosion control materials, shall be filed with the Secretary, for review and written approval by the Director of OEP. (*section 4.7.2.1*)
31. **Prior to construction of the LNG Terminal**, RG LNG shall file with the Secretary, for review and written approval by the Director of OEP, its proposed mitigation measures to avoid or minimize take of bottlenose dolphins during in-water pile-driving (including the potential for entrapment behind sheet pilings) at

the LNG Terminal site, developed in consultation with NMFS, and, if applicable, a copy of its MMPA Incidental Take Authorization. (*section 4.7.2.2*)

32. **Prior to construction of the Project**, RG Developers shall file with the Secretary a determination from the RRC that the Project is consistent with the laws and rules of the Texas Coastal Zone Management Program. (*section 4.8.3*)
33. **Prior to construction of the Rio Bravo Pipeline**, RB Pipeline shall file with the Secretary, for review and written approval by the Director of OEP, traffic mitigation procedures, developed in consultation with applicable transportation authorities, to monitor LOS on roadways proposed for use during construction of the Pipeline System. These procedures shall describe mitigation measures that will be implemented for a resultant LOS of C or below, including alternative routes if necessary. (*section 4.9.9.1*)
34. RG Developers shall **not begin construction of facilities or use of staging, storage, or temporary work areas and new or to-be-improved access roads until:**
 - a. RG Developers file with the Secretary:
 - i. outstanding SHPO comments on reports, plans, special studies, or information provided to date, as well as any NPS comments, as applicable;
 - ii. any outstanding updates, reports, plans, or special studies, and the SHPO's comments on these, as well as any NPS comments, as applicable; and
 - iii. any necessary treatment plans or site-specific avoidance/protection plans, and the SHPO's comments on the plans.
 - b. The ACHP is afforded an opportunity to comment if historic properties will be adversely affected.
 - c. The FERC staff reviews and the Director of OEP approves all cultural resources survey reports and plans, and notifies RG Developers in writing that construction may proceed.

All material filed with the Commission containing location, character, and ownership information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: "**CUI/PRIV – DO NOT RELEASE.**" (*section 4.10.5*)

35. RG LNG shall monitor pile-driving activities, and file **weekly** noise data with the Secretary **following the start of pile-driving activities** that identify the noise impact on the nearest NSAs. If any measured noise impacts (L_{max}) at the nearest NSAs are greater than 10 dBA over the L_{eq} ambient levels, RG LNG shall:
 - a. cease pile-driving activities and implement noise mitigation measures; and

- b. file with the Secretary evidence of noise mitigation installation and request written notification from the Director of OEP that pile-driving may resume. (*section 4.11.2.3*)
36. RG LNG shall file a full power load noise survey with the Secretary for the LNG Terminal **no later than 60 days** after each liquefaction train is placed into service. If the noise attributable to operation of the equipment at the LNG Terminal and Compressor Station 3 exceeds an L_{dn} of 55 dBA at the nearest NSA, **within 60 days** RG LNG shall modify operation of the liquefaction facilities or install additional noise controls until a noise level below an L_{dn} of 55 dBA at the NSA is achieved. RG LNG shall confirm compliance with the above requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls. (*section 4.11.2.3*)
37. RG LNG shall file a noise survey with the Secretary **no later than 60 days** after placing the entire LNG Terminal, including the Compressor Station 3, into service. If a full load condition noise survey is not possible, RG LNG shall provide an interim survey at the maximum possible horsepower load **within 60 days** of placing the LNG Terminal and Compressor Station 3 into service and provide the full load survey **within 6 months**. If the noise attributable to operation of the equipment at the LNG Terminal and Compressor Station 3 exceeds an L_{dn} of 55 dBA at the nearest NSA under interim or full horsepower load conditions, RG LNG shall file a report on what changes are needed and shall install the additional noise controls to meet the level **within 1 year** of the in-service date. RG LNG shall confirm compliance with the above requirement by filing an additional noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls. (*section 4.11.2.3*)
38. **Prior to construction of HDDs at MPs 82.0, 92.0, 93.0, 99.8, 101.2, 102.0, and 118.7**, RB Pipeline shall file with the Secretary, for review and written approval by the Director of OEP, an HDD noise mitigation plan to reduce noise levels attributable to the proposed drilling operations. The noise mitigation plan shall identify all reasonable measures RB Pipeline will implement to reduce noise levels attributable to the proposed drilling operations to no more than an L_{dn} of 55 dBA at NSAs, and the resulting noise levels at each NSA with mitigation. (*section 4.11.2.3*)
39. RB Pipeline shall file a noise survey with the Secretary **no later than 60 days** after each set of compressor units at Compressor Stations 1 and 2, and Booster Stations 1 and 2 are placed in service. If a full load condition noise survey is not possible, RB Pipeline shall provide an interim survey at the maximum possible horsepower load **within 60 days** of placing the phased station into service and provide the full load survey **within 6 months**. If the noise attributable to the operation of all of the equipment at any of the facilities under interim or full horsepower load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, RB Pipeline shall file a report on what additional noise controls are needed and shall install the additional noise controls to meet the level **within 1 year** of the in-service date. RB Pipeline shall confirm compliance with the above requirement by filing an additional noise survey

with the Secretary **no later than 60 days** after it installs the additional noise controls. (*section 4.11.2.3*)

40. **Prior to pipeline construction across, in, or adjacent to the Union Pacific Railroad Company right-of-way**, RB Pipeline shall file with the Secretary, for review and written approval by the Director of OEP, details concerning the pipeline construction under the railroad, including the depth of cover for the pipeline under the railroad, correspondence with the Union Pacific Railroad Company regarding construction and operation of the pipeline under and parallel to the railroad, and the specific federal and state regulations that RB Pipeline will follow to ensure safety and reliability of the pipeline operations in or under the railroad right-of-way. (*section 4.12.2*)
41. **Prior to initial site preparation**, RG LNG shall file with the Secretary documentation demonstrating LNG marine vessels will be no higher than existing ship traffic or it has received a determination of no hazard (with or without conditions) by DOT FAA for mobile objects that exceed the height requirements in 14 CFR 77.9. (*section 4.12.1.7*)
42. **Prior to initial site preparation**, RG LNG shall file with the Secretary a plan to conduct a supplemental geotechnical investigation for all four LNG Tanks and piperack along the south face of the facility, including a geotechnical investigation location plan with spacing of no more than 300 feet, a minimum of five equally distributed borings, cone penetration tests, and/or seismic cone penetration tests to a depth of at least 100 feet or refusal underneath the locations of each LNG storage tank, and field sampling methods and laboratory tests that are at least as comprehensive as the existing geotechnical investigations. In addition, the geotechnical investigations and report must demonstrate soil modifications and foundation designs will be similar to areas already investigated. (*section 4.12.1.7*)
43. **Prior to construction of final design**, RG LNG shall file with the Secretary correspondence with DOT on the use of normally closed valves to remove stormwater from local bunds and curbed areas. (*section 4.12.1.7*)
44. **Prior to construction of final design**, RG LNG shall file with the Secretary the following information, stamped and sealed by the professional engineer-of-record licensed in the state where the Project is being constructed:
 - a. site preparation drawings and specifications;
 - b. LNG storage tank and foundation design drawings and calculations;
 - c. LNG terminal structures and foundation design drawings and calculations;
 - d. seismic specifications for procured Seismic Category I equipment; and
 - e. quality control procedures to be used for civil/structural design and construction.

In addition, RG LNG shall file, in its Implementation Plan, the schedule for producing this information. (*section 4.12.1.7*)

45. **Prior to construction of final design**, RG LNG shall file with the Secretary design information adopting the recommendations presented by Fugro to minimize the impacts of the identified surface growth fault in the southwestern portion of the LNG Terminal, stamped and sealed by the professional engineer-of-record registered in Texas. (*section 4.12.1.7*)
46. **Prior to commencement of service**, RG LNG shall file with the Secretary a monitoring and maintenance plan, stamped and sealed by the professional engineer-of-record registered in Texas, for the perimeter levee which ensures the crest elevation relative to mean sea level will be maintained for the life of the facility considering berm settlement, subsidence, and sea level rise. (*section 4.12.1.7*)

Conditions 47 through 140 shall apply to the Rio Grande LNG Terminal facilities. Information pertaining to these specific conditions shall be filed with the Secretary for review and written approval by the Director of OEP, or the Director's designee, within the timeframe indicated by each condition. Specific engineering, vulnerability, or detailed design information meeting the criteria specified in Order No. 833 (Docket No. RM16-15-000), including security information, shall be submitted as critical energy infrastructure information pursuant to 18 CFR 388.113. See Critical Electric Infrastructure Security and Amending Critical Energy Infrastructure Information, Order No. 833, 81 FR. 93,732 (December 21, 2016), FERC Stats. & Regs. 31,389 (2016). Information pertaining to items such as offsite emergency response, procedures for public notification and evacuation, and construction and operating reporting requirements will be subject to public disclosure. All information shall be **filed a minimum of 30 days** before approval to proceed is requested.

47. **Prior to initial site preparation**, RG LNG shall develop and implement procedures to monitor rocket launch activity and to position onsite construction crews and plant personnel in areas that are unlikely to be impacted by rocket debris of a failed launch during initial moments of rocket launch activity from the Brownsville SpaceX facility. RG LNG's procedures for positioning of onsite construction crews and plant personnel shall include reference to any guidance from the FAA to the public regarding anticipated SpaceX launches. (*section 4.12.1.7*)
48. **Prior to initial site preparation**, RG LNG shall file calculations demonstrating the loads on buried pipelines and utilities at temporary crossings will be adequately distributed. The analysis shall be based on API RP 1102 or other approved methodology. (*section 4.12.1.7*)
49. **Prior to initial site preparation**, RG LNG shall file pipeline and utility damage prevention procedures for personnel and contractors. The procedures shall include provisions to mark buried pipelines and utilities prior to any site work and subsurface activities. (*section 4.12.1.7*)
50. **Prior to initial site preparation**, RG LNG shall file an overall Project schedule, which includes the proposed stages of the commissioning plan. (*section 4.12.1.7*)
51. **Prior to initial site preparation**, RG LNG shall file quality assurance and quality control procedures for construction activities. (*section 4.12.1.7*)

52. **Prior to initial site preparation**, RG LNG shall file procedures for controlling access during construction. (*section 4.12.1.7*)
53. **Prior to initial site preparation**, RG LNG shall file its design wind speed criteria for all other facilities not covered by DOT PHMSA's LOD to be designed to withstand wind speeds commensurate with the risk and reliability associated with the facilities in accordance with ASCE 7-16 or equivalent. (*section 4.12.1.7*)
54. **Prior to initial site preparation**, RG LNG shall develop an ERP (including evacuation) and coordinate procedures with the Coast Guard; state, county, and local emergency planning groups; fire departments; state and local law enforcement; and appropriate federal agencies. This plan shall include at a minimum:
- a. designated contacts with state and local emergency response agencies;
 - b. scalable procedures for the prompt notification of appropriate local officials and emergency response agencies based on the level and severity of potential incidents;
 - c. procedures for notifying residents and recreational users within areas of potential hazard;
 - d. evacuation routes/methods for residents and public use areas that are within any transient hazard areas along the route of the LNG marine transit;
 - e. locations of permanent sirens and other warning devices; and
 - f. an "emergency coordinator" on each LNG marine vessel to activate sirens and other warning devices.
- RG LNG shall notify the FERC staff of all planning meetings in advance and shall report progress on the development of its ERP at 3-month intervals. (*section 4.12.1.7*)
55. **Prior to initial site preparation**, RG LNG shall file a Cost-Sharing Plan identifying the mechanisms for funding all Project-specific security/emergency management costs that will be imposed on state and local agencies. This comprehensive plan shall include funding mechanisms for the capital costs associated with any necessary security/emergency management equipment and personnel base. RG LNG shall notify FERC staff of all planning meetings in advance and shall report progress on the development of its Cost-Sharing Plan at **3-month intervals**. (*section 4.12.1.7*)
56. **Prior to construction of final design**, RG LNG shall file calculations demonstrating the loads on buried pipelines and utilities at permanent crossings will be adequately distributed. The analysis shall be based on API RP 1102 or other approved methodology. (*section 4.12.1.7*)
57. **Prior to construction of final design**, RG LNG shall file change logs that list and explain any changes made from the front end engineering design provided in RG LNG's application and filings. A list of all changes with an explanation for the

design alteration shall be provided and all changes shall be clearly indicated on all diagrams and drawings. (*section 4.12.1.7*)

58. **Prior to construction of final design**, RG LNG shall file information/revisions pertaining to RG LNG' response numbers 5, 6, 7, 8, 14, 19, 22, 24, 25, 31, and 44 of its October 20, 2016 filing, which indicated features to be included or considered in the final design. (*section 4.12.1.7*)
59. **Prior to construction of final design**, RG LNG shall file a plot plan of the final design showing all major equipment, structures, buildings, and impoundment systems. (*section 4.12.1.7*)
60. **Prior to construction of final design**, RG LNG shall file three-dimensional plant drawings to confirm plant layout for maintenance, access, egress, and congestion. (*section 4.12.1.7*)
61. **Prior to construction of final design**, RG LNG shall file an up-to-date equipment list, process and mechanical data sheets, and specifications. The specifications shall include:
 - a. Building Specifications (e.g., control buildings, electrical buildings, compressor buildings, storage buildings, pressurized buildings, ventilated buildings, blast resistant buildings);
 - b. Mechanical Specifications (e.g., piping, valve, insulation, rotating equipment, heat exchanger, storage tank and vessel, other specialized equipment);
 - c. Electrical and Instrumentation Specifications (e.g., power system specifications, control system specifications, safety instrument system] specifications, cable specifications, other electrical and instrumentation specifications); and
 - d. Security and Fire Safety Specifications (security, passive protection, hazard detection, hazard control, firewater). (*section 4.12.1.7*)
62. **Prior to construction of final design**, RG LNG shall file a list of all codes and standards and the final specification document number where they are referenced. (*section 4.12.1.7*)
63. **Prior to construction of final design**, RG LNG shall file complete specifications and drawings of the proposed LNG tank design and installation. (*section 4.12.1.7*)
64. **Prior to construction of final design**, RG LNG shall file the design specifications and drawings for the feed gas inlet facilities (e.g., metering, pigging system, pressure protection system, compression, etc.). (*section 4.12.1.7*)
65. **Prior to construction of final design**, RG LNG shall file up-to-date process flow diagrams and P&IDs including vendor P&IDs. The process flow diagrams shall include heat and material balances. The P&IDs shall include the following information:
 - a. equipment tag number, name, size, duty, capacity, and design conditions;
 - b. equipment insulation type and thickness;

- c. storage tank pipe penetration size and nozzle schedule;
 - d. valve high pressure side and internal and external vent locations;
 - e. piping with line number, piping class specification, size, and insulation type and thickness;
 - f. piping specification breaks and insulation limits;
 - g. all control and manual valves numbered;
 - h. relief valves with size and set points; and
 - i. drawing revision number and date. (*section 4.12.1.7*)
66. **Prior to construction of final design**, RG LNG shall file P&IDs, specifications, and procedures that clearly show and specify the tie-in details required to safely connect subsequently constructed facilities with the operational facilities. (*section 4.12.1.7*)
67. **Prior to construction of final design**, RG LNG shall file a car seal philosophy and a list of all car-sealed and locked valves consistent with the P&IDs. (*section 4.12.1.7*)
68. **Prior to construction of final design**, and at the onset of detailed engineering, RG LNG shall complete a preliminary hazard and operability review of the proposed design. A copy of the review, a list of recommendations, and actions taken on the recommendations shall be filed. (*section 4.12.1.7*)
69. **Prior to construction of final design**, RG LNG shall file a hazard and operability review prior to issuing the P&IDs for construction. A copy of the review, a list of the recommendations, and actions taken on the recommendations shall be filed. (*section 4.12.1.7*)
70. **Prior to construction of final design**, RG LNG shall file an evaluation of the need for additional check valves and relief valves in the truck LNG fill line. (*section 4.12.1.7*)
71. **Prior to construction of final design**, RG LNG shall file the safe operating limits (upper and lower), alarm and shutdown set points for all instrumentation (i.e., temperature, pressures, flows, and compositions). (*section 4.12.1.7*)
72. **Prior to construction of final design**, RG LNG shall file cause-and-effect matrices for the process instrumentation, fire and gas detection system, and emergency shutdown system. The cause-and-effect matrices shall include alarms and shutdown functions, details of the voting and shutdown logic, and set points. (*section 4.12.1.7*)
73. **Prior to construction of final design**, RG LNG shall file an evaluation of the emergency shutdown valve closure times. The evaluation shall account for the time to detect an upset or hazardous condition, notify plant personnel, and close the emergency shutdown valve(s). (*section 4.12.1.7*)
74. **Prior to construction of final design**, RG LNG shall file an evaluation of dynamic pressure surge effects from valve opening and closure times and pump startup and

- shutdown operations demonstrating that the surge effects do not exceed the design pressures. (*section 4.12.1.7*)
75. **Prior to construction of final design**, RG LNG shall demonstrate that, for hazardous fluids, piping and piping nipples 2 inches or less in diameter are designed to withstand external loads, including vibrational loads in the vicinity of rotating equipment and operator live loads in areas accessible by operators. (*section 4.12.1.7*)
76. **Prior to construction of final design**, RG LNG shall file electrical area classification drawings that reflect additional hazardous classification areas where the heat transfer fluid would be processed above its flash point (e.g., near the heat medium heaters) and at areas of fuel gas piping (e.g., fired heaters), including areas where equipment could be exposed to flammable gas during a purge cycle of a fired heater. (*section 4.12.1.7*)
77. **Prior to construction of final design**, RG LNG shall file drawings and details of how process seals or isolations installed at the interface between a flammable fluid system and an electrical conduit or wiring system meet the requirements of NFPA 59A (2001). (*section 4.12.1.7*)
78. **Prior to construction of final design**, RG LNG shall file details of an air gap or vent installed downstream of process seals or isolations installed at the interface between a flammable fluid system and an electrical conduit or wiring system. Each air gap shall vent to a safe location and be equipped with a leak detection device that shall continuously monitor for the presence of a flammable fluid, alarm the hazardous condition, and shut down the appropriate systems. (*section 4.12.1.7*)
79. **Prior to construction of final design**, RG LNG shall file drawings of the storage tank piping support structure and support of horizontal piping at grade including pump columns, relief valves, pipe penetrations, instrumentation, and appurtenances. (*section 4.12.1.7*)
80. **Prior to construction of final design**, RG LNG shall include LNG storage tank fill flow measurement with high flow alarm. (*section 4.12.1.7*)
81. **Prior to construction of final design**, RG LNG shall include BOG flow measurement from each LNG storage tank. (*section 4.12.1.7*)
82. **Prior to construction of final design**, RG LNG shall file the structural analysis of the LNG storage tank and outer containment demonstrating they are designed to withstand all loads and combinations. (*section 4.12.1.7*)
83. **Prior to construction of final design**, RG LNG shall file an analysis of the structural integrity of the outer containment of the full containment LNG storage tank demonstrating it can withstand the radiant heat from a roof tank top fire or adjacent tank roof fire. (*section 4.12.1.7*)
84. **Prior to construction of final design**, RG LNG shall file a projectile analysis to demonstrate that the outer concrete impoundment wall of the full-containment LNG tank could withstand projectiles from explosions and high winds. The analysis shall

detail the projectile speeds and characteristics and method used to determine penetration or perforation depths. (*section 4.12.1.7*)

85. **Prior to construction of final design**, RG LNG shall file the sizing basis and capacity for the final design of the flares and/or vent stacks as well as the pressure and vacuum relief valves for major process equipment, vessels, and storage tanks. (*section 4.12.1.7*)
86. **Prior to construction of final design**, RG LNG shall file a drawing showing the location of the emergency shutdown buttons. Emergency shutdown buttons shall be easily accessible, conspicuously labeled, and located in an area which will be accessible during an emergency. (*section 4.12.1.7*)
87. **Prior to construction of final design**, RG LNG shall specify that all Emergency Shutdown valves will be equipped with open and closed position switches connected to the Distributed Control System/Safety Instrumented System. (*section 4.12.1.7*)
88. **Prior to construction of final design**, and prior to injecting corrosion inhibitors into the 42-inch-diameter pipeline at any time during the life of the plant, RG LNG shall file the information used to determine that an inhibitor is required, the material data sheet for the inhibitor, the amount injected, and the schedule of injections. (*section 4.12.1.7*)
89. **Prior to construction of final design**, the feed gas flow to the Inlet Gas/Gas Exchanger (E-1701) shall include a high temperature alarm and shutdown to protect from exposure to hot feed gas. (*section 4.12.1.7*)
90. **Prior to construction of final design**, the De-ethanizer (C-1701) shall include an additional cryogenic manual isolation valve downstream of shutoff valve (XV-117011). (*section 4.12.1.7*)
91. **Prior to construction of final design**, RG LNG shall equip a low-low temperature shutdown on the temperature transmitter (TT-117014) located on the De-ethanizer bottoms discharge piping to detect temperatures that may reach below the minimum design metal temperature of the discharge piping transition from stainless to carbon steel. This shutdown shall include isolation under cryogenic conditions. (*section 4.12.1.7*)
92. **Prior to construction of final design**, RG LNG shall file an explanation and justification for the dump lines located upstream of each LNG Loading Arm. (*section 4.12.1.7*)
93. **Prior to construction of final design**, RG LNG shall file the complete range of anti-surge recycle conditions on the LP MR Compressor to confirm that the minimum temperature conditions will not require stainless steel piping. (*section 4.12.1.7*)
94. **Prior to construction of final design**, RG LNG shall specify the set pressure of high pressure alarm (PAH-141002) is to be below the set pressure of regulator PCV-141005 on the Hot Oil Expansion Drum. (*section 4.12.1.7*)

95. **Prior to construction of final design**, RG LNG shall file the design details of the shelters to verify safe access in all weather conditions. (*section 4.12.1.7*)
96. **Prior to construction of final design**, RG LNG shall file drawings and specifications for crash rated vehicle barriers at each facility entrance for access control. (*section 4.12.1.7*)
97. **Prior to construction of final design**, RG LNG shall file drawings of the security fence. The fencing drawings should provide details of fencing that demonstrates it will restrict and deter access around the entire facility and has a setback from exterior features (e.g., power lines, trees, etc.) and from interior features (e.g., piping, equipment, buildings, etc.) that does not allow the fence to be overcome. (*section 4.12.1.7*)
98. **Prior to construction of final design**, RG LNG shall file security camera and intrusion detection drawings. The security camera drawings shall show the locations, areas covered, and features of each camera (e.g., fixed, tilt/pan/zoom, motion detection alerts, low light, mounting height, etc.) to verify camera coverage of the entire perimeter with redundancies, and cameras interior to the facility that will enable rapid monitoring of the terminal, including a camera at the top of each LNG storage tank, and coverage within pretreatment areas, within liquefaction areas, within truck transfer areas, within marine transfer areas, and buildings. The drawings shall show or note the location of the intrusion detection to verify it covers the entire perimeter of the terminal. (*section 4.12.1.7*)
99. **Prior to construction of final design**, RG LNG shall file lighting drawings. The lighting drawings shall show the location, elevation, type of light fixture, and lux levels of the lighting system and shall be in accordance with API 540 and provide illumination along the entire perimeter of the facility, process equipment, mooring points, and along paths/roads of access and egress to facilitate security monitoring and emergency response operations. The lighting drawings should address the issues raised in condition 22. (*section 4.12.1.7*)
100. **Prior to construction of final design**, RG LNG shall evaluate the terminal alarm system and external notification system design to ensure the location of the terminal alarms and other fire and evacuation alarm notification devices (e.g. audible/visual beacons and strobes) will provide adequate warning at the terminal and external off-site areas in the event of an emergency. (*section 4.12.1.7*)
101. **Prior to construction of final design**, RG LNG shall file an updated fire protection evaluation of the proposed facilities. A copy of the evaluation, a list of recommendations and supporting justifications, and actions taken on the recommendations shall be filed. The evaluation shall justify the type, quantity, and location of hazard detection and hazard control, passive fire protection, emergency shutdown and depressurizing systems, firewater, and emergency response equipment, training, and qualifications in accordance with NFPA 59A (2001). The justification for the flammable and combustible gas detection and flame and heat detection shall be in accordance with ISA 84.00.07 or equivalent methodologies that will demonstrate 90 percent or more of releases (unignited and ignited) that could result in an off-site or cascading impact will be detected by two or more

detectors and result in isolation and de-inventory within 10 minutes. The analysis shall take into account the set points, voting logic, wind speeds, and wind directions. The justification for firewater shall provide calculations for all firewater demands (including firewater coverage on the LNG storage tanks) based on design densities, surface area, and throw distance and specifications for the corresponding hydrant and monitors needed to reach and cool equipment. (*section 4.12.1.7*)

102. **Prior to construction of final design**, RG LNG shall file spill containment system drawings with dimensions and slopes of curbing, trenches, impoundments, and capacity calculations considering any foundations and equipment within impoundments, as well as the sizing and design of the down-comer that will transfer spills from the tank top to the ground-level impoundment system. The spill containment drawings shall show containment for all hazardous fluids, including all liquids handled above their flashpoint, from the largest flow from a single line for 10 minutes, including de-inventory, or the maximum liquid from the largest vessel (or total of impounded vessels) or otherwise demonstrate that providing spill containment will not significantly reduce the flammable vapor dispersion or radiant heat consequences of a spill. In addition, RG LNG should demonstrate that the stainless steel piping spill trays at each LNG storage tank will withstand the force and shock of a sudden cryogenic release. (*section 4.12.1.7*)
103. **Prior to construction of final design**, RG LNG shall file an analysis demonstrating the side on overpressures will be less than 1 psi at the LNG storage tanks and the condensate storage tanks, or demonstrating the tanks will be able to withstand overpressures within the terminal. (*section 4.12.1.7*)
104. **Prior to construction of final design**, RG LNG shall file complete drawings and a list of the hazard detection equipment. The drawings shall clearly show the location and elevation of all detection equipment. The list shall include the instrument tag number, type and location, alarm indication locations, and shutdown functions of the hazard detection equipment. (*section 4.12.1.7*)
105. **Prior to construction of final design**, RG LNG shall file a list of alarm and shutdown set points for all hazard detectors that account for the calibration gas of the hazard detectors when determining the lower flammable limit set points for methane, propane, ethane/ethylene, and condensate. (*section 4.12.1.7*)
106. **Prior to construction of final design**, RG LNG shall file a list of alarm and shutdown set points for all hazard detectors that account for the calibration gas of hazard detectors when determining the set points for toxic components such as natural gas liquids and hydrogen sulfide. (*section 4.12.1.7*)
107. **Prior to construction of final design**, RG LNG shall file a technical review of facility design that:
 - a. identifies all combustion/ventilation air intake equipment and the distances to any possible flammable gas or toxic release; and
 - b. demonstrates that these areas are adequately covered by hazard detection devices and indicates how these devices will isolate or shut down any

combustion or heating ventilation and air conditioning equipment whose continued operation could add to or sustain an emergency. (section 4.12.1.7)

108. **Prior to construction of final design**, RG LNG shall file an analysis of the off gassing of hydrogen in battery rooms and ventilation calculations that limit concentrations below the lower flammability limits (e.g., 25 percent LFL) and shall also provide hydrogen detectors that alarm (e.g., 20 to 25 percent LFL) and initiate mitigative actions (e.g., 40 to 50 percent LFL). (section 4.12.1.7)
109. **Prior to construction of final design**, RG LNG shall file plan drawings and a list of the fixed and wheeled dry-chemical, hand-held fire extinguishers, and other hazard control equipment. Plan drawings shall clearly show the location and elevation by tag number of all fixed dry chemical systems in accordance with NFPA 17, wheeled and hand-held extinguishers location travel distances are along normal paths of access and egress in accordance with NFPA 10. The list shall include the equipment tag number, type, capacity, equipment covered, discharge rate, and automatic and manual remote signals initiating discharge of the units. (section 4.12.1.7)
110. **Prior to construction of final design**, RG LNG shall file a design that includes clean agent systems in the instrumentation buildings and electrical substations. (section 4.12.1.7)
111. **Prior to construction of final design**, RG LNG shall file facility plan drawings showing the proposed location of the firewater and any foam systems. Plan drawings shall clearly show the location of firewater and foam piping, post indicator valves, and the location and area covered by each monitor, hydrant, hose, water curtain, deluge system, foam system, water mist system, and sprinkler. The drawings shall also include piping and instrumentation diagrams of the firewater and foam systems. In addition, firewater coverage shall include the coverage of each LNG storage tank. (section 4.12.1.7)
112. **Prior to construction of final design**, RG LNG shall demonstrate that the firewater tank would be in compliance with NFPA 22 or demonstrate how API 650 provides an equivalent or better level of safety. (section 4.12.1.7)
113. **Prior to construction of final design**, RG LNG shall specify that the firewater flow test meter is equipped with a transmitter and that a pressure transmitter is installed upstream of the flow transmitter. The flow transmitter and pressure transmitter shall be connected to the Distributed Control System and recorded. (section 4.12.1.7)
114. **Prior to construction of final design**, RG LNG shall specify the dimension ratio (DR) to be DR 7 for the high density polyethylene piping to allow consistent pressure rating requirements with the firewater system. (section 4.12.1.7)
115. **Prior to construction of final design**, RG LNG shall file drawings and specifications for the structural passive protection systems to protect equipment and supports from cryogenic releases. (section 4.12.1.7)

116. **Prior to construction of final design**, RG LNG shall file calculations or test results for the structural passive protection systems to demonstrate that equipment and supports are protected from cryogenic releases. (*section 4.12.1.7*)
117. **Prior to construction of final design**, RG LNG shall file drawings and specifications for the structural passive protection systems demonstrating that equipment and supports are protected from pool and jet fires. (*section 4.12.1.7*)
118. **Prior to construction of final design**, RG LNG shall file a detailed quantitative analysis to demonstrate that adequate mitigation will be provided for each significant component within the 4,000 Btu/ft²-hr zone from pool and jet fires that could cause failure of the component, including the Jetty Monitor Buildings and the LNG Storage and Loading Substation 2. Trucks at the truck loading/unloading areas shall be included in the analysis. A combination of passive and active protection for pool fires and passive and/or active protection for jet fires shall be provided and demonstrate the effectiveness and reliability. Effectiveness of passive mitigation shall be supported by calculations or test results for the thickness limiting temperature rise and active mitigation shall be justified with calculations or test results demonstrating flow rates and durations of any cooling water will mitigate the heat absorbed by the vessel. (*section 4.12.1.7*)
119. **Prior to construction of final design**, RG LNG shall file specifications and drawings demonstrating how cascading damage of transformers will be prevented (e.g., firewalls or spacing) in accordance with NFPA 850 or equivalent. (*section 4.12.1.7*)
120. **Prior to construction of final design**, RG LNG shall file an evaluation of the voting logic and voting degradation for hazard detectors. (*section 4.12.1.7*)
121. **Prior to commissioning**, RG LNG shall file a detailed schedule for commissioning through equipment startup. The schedule shall include milestones for all procedures and tests to be completed: prior to introduction of hazardous fluids and during commissioning and startup. RG LNG shall file documentation certifying that each of these milestones has been completed before authorization to commence the next phase of commissioning and startup will be issued. (*section 4.12.1.7*)
122. **Prior to commissioning**, RG LNG shall file detailed plans and procedures for: testing the integrity of onsite mechanical installation; functional tests; introduction of hazardous fluids; operational tests; and placing the equipment into service. (*section 4.12.1.7*)
123. **Prior to commissioning**, RG LNG shall file the procedures for pressure/leak tests which address the requirements of ASME VIII and ASME B31.3. The procedures shall include a line list of pneumatic and hydrostatic test pressures. (*section 4.12.1.7*)
124. **Prior to commissioning**, RG LNG shall file a plan for clean-out, dry-out, purging, and tightness testing. This plan shall address the requirements of the American Gas Association's Purging Principles and Practice, and shall provide justification if not using an inert or non-flammable gas for clean-out, dry-out, purging, and tightness testing. (*section 4.12.1.7*)

125. **Prior to commissioning**, RG LNG shall file the operation and maintenance procedures and manuals, as well as safety procedures, hot work procedures and permits, abnormal operating conditions reporting procedures, simultaneous operations procedures, and management of change procedures and forms. (*section 4.12.1.7*)
126. **Prior to commissioning**, RG LNG shall tag all equipment, instrumentation, and valves in the field, including drain valves, vent valves, main valves, and car-sealed or locked valves. (*section 4.12.1.7*)
127. **Prior to commissioning**, RG LNG shall file a plan to maintain a detailed training log to demonstrate that operating, maintenance, and emergency response staff have completed the required training. (*section 4.12.1.7*)
128. **Prior to commissioning**, RG LNG shall file the settlement results from hydrostatic testing the LNG storage containers as well as a routine monitoring program to ensure settlements are as expected and do not exceed applicable criteria in API 620, API 625, API 653, and ACI 376. The program shall specify what actions would be taken after seismic events. (*section 4.12.1.7*)
129. **Prior to commissioning**, RG LNG shall equip the LNG storage tank and adjacent piping and supports with permanent settlement monitors to allow personnel to observe and record the relative settlement between the LNG storage tank and adjacent piping. The settlement record shall be reported in the semi-annual operational reports. (*section 4.12.1.7*)
130. **Prior to introduction of hazardous fluids**, RG LNG shall complete and document all pertinent tests (e.g., Factory Acceptance Tests, Site Acceptance Tests, Site Integration Tests) associated with the Distributed Control System/Safety Instrumented System that demonstrates full functionality and operability of the system. (*section 4.12.1.7*)
131. **Prior to introduction of hazardous fluids**, RG LNG shall develop and implement an alarm management program to reduce alarm complacency and maximize the effectiveness of operator response to alarms. (*section 4.12.1.7*)
132. **Prior to introduction of hazardous fluids**, RG LNG shall develop and implement procedures for plant personnel to monitor the rocket launches from the Brownsville SpaceX facility and take mitigative actions before and after a rocket launch failure to minimize the potential of release reaching offsite areas or resulting in cascading effects that could extend offsite or impact safe operations. (*section 4.12.1.7*)
133. **Prior to introduction of hazardous fluids**, RG LNG shall complete and document a firewater pump acceptance test and firewater monitor and hydrant coverage test. The actual coverage area from each monitor and hydrant shall be shown on facility plot plan(s). (*section 4.12.1.7*)
134. **Prior to introduction of hazardous fluids**, RG LNG shall complete and document a prestartup safety review to ensure that installed equipment meets the design and operating intent of the facility. The prestartup safety review shall include any changes since the last hazard review, operating procedures, and operator training.

A copy of the review with a list of recommendations, and actions taken on each recommendation, shall be filed. (*section 4.12.1.7*)

135. RG LNG shall file a request for written authorization from the Director of OEP **prior to unloading or loading the first LNG commissioning cargo**. After production of first LNG, RG LNG shall file **weekly** reports on the commissioning of the proposed systems that detail the progress toward demonstrating the facilities can safely and reliably operate at or near the design production rate. The reports shall include a summary of activities, problems encountered, and remedial actions taken. The weekly reports shall also include the latest commissioning schedule, including projected and actual LNG production by each liquefaction train, LNG storage inventories in each storage tank, and the number of anticipated and actual LNG commissioning cargoes, along with the associated volumes loaded or unloaded. Further, the weekly reports shall include a status and list of all planned and completed safety and reliability tests, work authorizations, and punch list items. Problems of significant magnitude shall be reported to the FERC **within 24 hours**. (*section 4.12.1.7*)
136. **Prior to commencement of service**, RG LNG shall label piping with fluid service and direction of flow in the field, in addition to the pipe labeling requirements of NFPA 59A (2001 edition). (*section 4.12.1.7*)
137. **Prior to commencement of service**, RG LNG shall file plans for any preventative and predictive maintenance program that performs periodic or continuous equipment condition monitoring. (*section 4.12.1.7*)
138. **Prior to commencement of service**, RG LNG shall develop procedures for offsite contractors' responsibilities, restrictions, and limitations and for supervision of these contractors by RG LNG staff. (*section 4.12.1.7*)
139. **Prior to commencement of service**, RG LNG shall notify the FERC staff of any proposed revisions to the security plan and physical security of the plant. (*section 4.12.1.7*)
140. **Prior to commencement of service**, RG LNG shall file a request for written authorization from the Director of OEP. Such authorization will only be granted following a determination by the Coast Guard, under its authorities under the Ports and Waterways Safety Act, the Magnuson Act, the MTSA of 2002, and the Security and Accountability For Every Port Act, that appropriate measures to ensure the safety and security of the facility and the waterway have been put into place by RG LNG or other appropriate parties. (*section 4.12.1.7*)

In addition, conditions 141 through 144 shall apply **throughout the life of the Rio Grande LNG Terminal**.

141. The facilities shall be subject to regular FERC staff technical reviews and site inspections on at least an **annual basis** or more frequently as circumstances indicate. Prior to each FERC staff technical review and site inspection, RG LNG shall respond to a specific data request including information relating to possible design and operating conditions that may have been imposed by other agencies or

organizations. Up-to-date detailed P&IDs reflecting facility modifications and provision of other pertinent information not included in the semi-annual reports described below, including facility events that have taken place since the previously submitted annual report, shall be submitted. (*section 4.12.1.7*)

142. **Semi-annual** operational reports shall be filed with the Secretary to identify changes in facility design and operating conditions; abnormal operating experiences; activities (e.g., ship arrivals, quantity and composition of imported and exported LNG, liquefied quantities, boil off/flash gas); and plant modifications, including future plans and progress thereof. Abnormalities shall include, but not be limited to, unloading/loading/shipping problems, potential hazardous conditions from offsite vessels, storage tank stratification or rollover, geysering, storage tank pressure excursions, cold spots on the storage tanks, storage tank vibrations and/or vibrations in associated cryogenic piping, storage tank settlement, significant equipment or instrumentation malfunctions or failures, non-scheduled maintenance or repair (and reasons therefore), relative movement of storage tank inner vessels, hazardous fluids releases, fires involving hazardous fluids and/or from other sources, negative pressure (vacuum) within a storage tank, and higher than predicted boil off rates. Adverse weather conditions and the effect on the facility also shall be reported. Reports shall be submitted **within 45 days after each period ending June 30 and December 31**. In addition to the above items, a section entitled “Significant Plant Modifications Proposed for the Next 12 Months (dates)” shall be included in the semi-annual operational reports. Such information will provide the FERC staff with early notice of anticipated future construction/maintenance at the LNG facilities. (*section 4.12.1.7*)
143. In the event the temperature of any region of any secondary containment, including imbedded pipe supports, becomes less than the minimum specified operating temperature for the material, the Commission shall be notified **within 24 hours** and procedures for corrective action shall be specified. (*section 4.12.1.7*)
144. Significant non-scheduled events, including safety-related incidents (e.g., LNG, condensate, refrigerant, or natural gas releases; fires; explosions; mechanical failures; unusual over pressurization; and major injuries) and security-related incidents (e.g., attempts to enter site, suspicious activities) shall be reported to the FERC staff. In the event that an abnormality is of significant magnitude to threaten public or employee safety, cause significant property damage, or interrupt service, notification shall be made **immediately**, without unduly interfering with any necessary or appropriate emergency repair, alarm, or other emergency procedure. In all instances, notification shall be made to the FERC staff **within 24 hours**. This notification practice shall be incorporated into the LNG facility’s emergency plan. Examples of reportable hazardous fluids-related incidents include:
 - a. fire;
 - b. explosion;
 - c. estimated property damage of \$50,000 or more;
 - d. death or personal injury necessitating in-patient hospitalization;

- e. release of hazardous fluids for 5 minutes or more;
- f. unintended movement or abnormal loading by environmental causes, such as an earthquake, landslide, or flood, that impairs the serviceability, structural integrity, or reliability of an LNG facility that contains, controls, or processes hazardous fluids;
- g. any crack or other material defect that impairs the structural integrity or reliability of an LNG facility that contains, controls, or processes hazardous fluids;
- h. any malfunction or operating error that causes the pressure of a pipeline or LNG facility that contains or processes hazardous fluids to rise above its maximum allowable operating pressure (or working pressure for LNG facilities) plus the build-up allowed for operation of pressure-limiting or control devices;
- i. a leak in an LNG facility that contains or processes hazardous fluids that constitutes an emergency;
- j. inner tank leakage, ineffective insulation, or frost heave that impairs the structural integrity of an LNG storage tank;
- k. any safety-related condition that could lead to an imminent hazard and cause (either directly or indirectly by remedial action of the operator), for purposes other than abandonment, a 20 percent reduction in operating pressure or shutdown of operation of a pipeline or an LNG facility that contains or processes hazardous fluids;
- l. safety-related incidents from hazardous fluids transportation occurring at or en route to and from the LNG facility; or
- m. an event that is significant in the judgment of the operator and/or management even though it did not meet the above criteria or the guidelines set forth in an LNG facility's incident management plan.

In the event of an incident, the Director of OEP has delegated authority to take whatever steps are necessary to ensure operational reliability and to protect human life, health, property, or the environment, including authority to direct the LNG facility to cease operations. Following the initial company notification, the FERC staff would determine the need for a separate follow-up report or follow-up in the upcoming semi-annual operational report. All company follow-up reports shall include investigation results and recommendations to minimize a reoccurrence of the incident. (*section 4.12.1.7*)

APPENDIX A
DISTRIBUTION FOR NOTICE OF AVAILABILITY

APPENDIX A**DISTRIBUTION FOR NOTICE OF AVAILABILITY****Federal Government Agencies**

Commander (dpw), Attn: LT Collin Sykes,
LA

U.S. Department of Transportation, MD
Army Corps of Engineers, Planning and
Policy Division, Attn: CECW-P, DC

Bureau of Indian Affairs, DOI, BJ
Howerton, VA

Bureau of Indian Affairs, DOI, Terry L
McClung, DC

Bureau of Ocean Energy Management, DOI,
Dr. Jill Lewandowski, VA

Bureau of Oceans & International
Environmental & Scientific Affairs,
DOS, Alexander Yuan, DC

Bureau of Safety and Environmental
Enforcement, DOI, David Fish, VA

Bureau of U.S. Customs and Border
Protection – Gateway Bridge, TX

Bureau of U.S. Customs and Border
Protection - Seaport, TX

c/o US Fish & Wildlife Service, United
States of America, NM

Conservation and Environmental Program
Division, FSA, USDA, Nell Fuller,
DC

Council on Environmental Quality, Edward
Boling, DC

Environment and Natural Resources
Division, DOJ, US Department of
Justice, DC

Environmental Protection Agency,
Lawrence Starfield, DC

Environmental Protection Agency, Susan E
Bromm, DC

EPA Region 6, Lauren Poulos, TX

FAA Commercial Space Transportation -
Operations Integration Division,
Anna Cushman, DC

FAA Commercial Space Transportation -
Operations Integration Division, Ken
Gidlow, TX

FAA Commercial Space Transportation -
Operations Integration Division,
Stacy Zee, DC

Federal Aviation Administration, Chris
Shoulders, TX

Federal Bureau of Investigation, TX
Galveston District, Operations Division,
U.S. Army Corps of Engineers,
Frank Garcia, TX

National Center for Environmental Health,
CDC, HHS, Sharunda Buchanan,
GA

National Marine Fisheries Service, Michael
Tucker, FL

National Marine Fisheries Service, Rusty
Swafford, TX

National Park Service, Astrid Liverman, CO
National Park Service, Justin Henderson,
CO

National Park Service, Tom Keohan, CO

National Park Service, DOI, Patrick Walsh,
CO

Natural Resources Conservation Service,
USDA, Andree DuVarney, DC

NOAA Fisheries, Ben Laws, MD

NOAA Fisheries, Jaclyn Daly, MD

NOAA National Marine Fisheries Service,
Dept. of Commerce, NOAA National
Marine Fisheries Service, MD

NPS Heritage Partnership Program, Mark
Spier, TX

Office of Assistant Secretary for
Transportation Policy, USDOT,
Camille Mittelholtz, DC

Office of Assistant Secretary for
Transportation Policy, USDOT,
Helen Serassio, DC

**Federal Government Agencies
(continued)**

Office of Environment and Energy, HUD,
Danielle Schopp, DC

Office of Environmental Management,
DOE, Mark Whitney, DC

Office of Federal Programs, Advisory
Council on Historic Preservation,
Charlene D Vaughn, DC

Office of NEPA Policy and Compliance,
DOE, Brian Costner, DC

Office of Pipeline Safety USDOT PHMSA,
Ahuva Battams, DC

Office of Pipeline Safety USDOT PHMSA,
Kenneth Y Lee, DC

Office of Pipeline Safety USDOT PHMSA,
Melanie Stevens, DC

Palo Alto Battlefield National Historical
Park, Rolando L. Garza, TX

Pipeline & Hazardous Materials Safety
Administration USDOT, William
Schoonover, DC

Pipeline & Hazardous Materials Safety
Administration, Office of Pipeline
Safety, USDOT, Karen Lynch, DC

Region 2 Division of Realty, U.S. Fish &
Wildlife Service, NM

Surface Transportation Board, USDOT,
Victoria Rutson, DC

Texas Historical Commission, David
Camarena, TX

U.S. Army Corps of Engineers, TX

U.S. Army Corps of Engineers - Galveston
District, Denise Sloan, TX

U.S. Army Corps of Engineers - Galveston
District, Felicity Dodson, TX

U.S. Army Corps of Engineers, Corpus
Christi Regulatory Field Office, Nick
Laskowski, TX

U.S. Border Patrol, TX

U.S. Bureau of Land Management, DOI, US
Department of Interior, DC

U.S. Coast Guard, TX

U.S. Department of Agriculture, Gateway
Bridge, TX

U.S. Department of Agriculture-Natural
Resources Conservation Service,
Alan Stahnke, TX

U.S. Department of Agriculture-Natural
Resources Conservation Service,
Shanna Dunn, TX

U.S. Department of Energy, John Anderson,
DC

U.S. Department of Health and Human
Services, Mr. Everett Bole, CHMM,
DC

U.S. Department of Transportation Pipeline
and Hazardous Materials Safety
Administration, Kenneth Lee, DC

U.S. Department of Transportation Pipeline
and Hazardous Materials Safety
Administration, Senth White, DC

U.S. Environmental Protection Agency -
Region 6, Rob Lawrence, TX

U.S. Fish and Wildlife Service, Boyd
Bihovde, TX

U.S. Fish and Wildlife Service, Brian
Winton, TX

U.S. Fish and Wildlife Service, Dawn
Gardiner, TX

U.S. Fish and Wildlife Service, Ernesto
Reyes, TX

U.S. Fish and Wildlife Service, Pat
Clements, TX

U.S. Fish and Wildlife Service, Robert D.
Jess, TX

U.S. Fish and Wildlife Service, Corpus
Christi Office of the Texas Coastal
Ecological Service, Bruce Kindle,
TX

U.S. Immigration & Naturalization Service,
Gateway Bridge, TX

U.S. Marshals, TX

US Customs and Border Protection Dept. of
Homeland Security, Christopher Oh,
DC

Federal Government Agencies
(continued)

US Department of Energy, John Anderson,
DC

US Geological Survey, Mark Leeper, VA

USDA Forest Service-Ecosystem
Management Coordination, Joe
Carbone, DC

Wetlands Section EPA Region 6, Maria
Martinez, TX

Federal Senators and Representatives

Senate Energy and Natural Resources
Committee, Lisa Murkowski, DC

U.S. House of Congress, Bill Shuster, D.C.

U.S. House of Congress, Blake Farenthold,
TX

U.S. House of Congress, Filemon Vela, Jr.,
D.C.

U.S. House of Representatives, Gene
Greene, D.C.

U.S. House of Representatives, Jody
Arrington, D.C.

U.S. House of Representatives, Kevin
Brady, D.C.

U.S. House of Representatives, Mike
Conaway, D.C.

U.S. House of Representatives, Pete Olson,
D.C.

U.S. Senate, John Cornyn, D.C.

U.S. Senate, Ted Cruz, D.C.

State Government Agencies

Railroad Commission of Texas, Grant
Chambless, TX

Railroad Commission of Texas, Kari
French, TX

Railroad Commission of Texas, Leslie
Savage, P.G., TX

Railroad Commission of Texas, Virginia
Beverdorff, TX

Texas Commission on Environmental
Quality, Jamie A. Garza, TX

Texas Commission on Environmental
Quality, Kate Stinchomb, TX

Texas Commission on Environmental
Quality, Susan Clewis, TX

Texas Department of Agriculture, Noxious
and Invasive Plants, TX

Texas Department of Transportation, Homer
Bizan, TX

Texas Department of Transportation, Robert
Isassi, TX

Texas Historical Commission, Casey
Hanson, TX

Texas Historical Commission, Mark Wolfe,
TX

Texas Parks and Wildlife Department,
Coastal Fisheries Division, Willy
Cupit, TX

Texas Parks and Wildlife Department,
Ecosystem Resources Program,
Jackie Robinson, TX

Texas Parks and Wildlife Department,
Ecosystem Resources Program,
Leslie Koza, TX

Texas Parks and Wildlife Department,
Ecosystem Resources Program,
Liana Lerma, TX

Texas Parks and Wildlife Division, Rebecca
Hensley, TX

State Officials

State of Texas, Carlos H. Cascos, TX

State of Texas, Dan Patrick, TX

State of Texas, Greg Abbott, TX

State Senators and Representatives

Texas House of Representatives, Bryan
Cook, TX

Texas House of Representatives, Drew
Darby, TX

Texas House of Representatives, Eddie
Lucio, III, TX

Texas House of Representatives, René O.
Oliveira, TX

Texas House of Representatives, Ryan
Guillen, TX

Texas House of Representatives, Speaker
Joe Straus, TX

**State Senators and Representatives
(continued)**

Texas Senate, Eddie Lucio, Jr., TX

Texas Senate, Juan Hinojosa, TX

Texas Senate, Troy Fraser, TX

Local Government Agencies

Arroyo Colorado Navigational District, TX

Commissioner Emede Garcia, TX

Commissioner Margie H. Gonzalez, TX

Commissioner Ventura Garcia, Jr., TX

Honorable Judge Pedro "Pete" Trevino, TX

Port of Harlingen, f.k.a. Arroyo Colorado
Navigational District, TX

Bayside Marine, Inc., Ruben Fuentes, TX

Cameron County, Alex Dominguez, TX

Cameron County, Dan Sanchez, TX

Cameron County, David A. Garza, TX

Cameron County, David Sanchez, TX

Cameron County, Pete Sepulveda, Jr., TX

Cameron County Sheriff's Office, Omar
Lucio, TX

Cameron County, Precinct 1, Sofia C.
Benavides, TX

City of Brownsville, Charlie Cabler, TX

City of Brownsville, Deborah Portillo, TX

City of Brownsville, Jessica Tetreau-Kalifa,
TX

City of Brownsville, John Villareal, TX

City of Brownsville, Ricardo Longoria, Jr.,
TX

City of Brownsville, Rose M. Z. Gowen, TX

City of Brownsville, Tony Martinez, TX

City of Kingsville, Alfonso "Al" Rene
Garcia, TX

City of Kingsville, Arturo Pecos, TX

City of Kingsville, Courtney Alvarez, TX

City of Kingsville, Dianne Leubert, TX

City of Kingsville, Noel Pena, TX

City of Kingsville, Sam Fugate, TX

City of Laguna Vista, Frank T. Davalos, Jr.,
TX

City of Laguna Vista, Gary Meschi, TX

City of Laguna Vista, Leti Martinez
Keplinger, TX

City of Laguna Vista, Mike Carter, TX

City of Laguna Vista, Richard Hinojosa, TX

City of Laguna Vista, Rolando Vela, TX

City of Laguna Vista, Susie Houston, TX

Local Government Agencies (continued)

City of Laguna Vista, Wanda Reyes-Rice,
TX

City of Port Isabel, Edward Meza, TX

City of Port Isabel, Gilberto Hinojosa, TX

City of Port Isabel, Guillermo Torres, TX

City of Port Isabel, Jared Hockema, TX

City of Port Isabel, Joe E. Vega, TX

City of Port Isabel, Juan Jose "JJ" Zamora,
TX

City of Port Isabel, Marie de Jesus Garza,
TX

City of Port Isabel, Martin C. Cantu, TX

City of Raymondville, Clifton Smith, TX

City of Raymondville, Eleazar Garcia, Jr.,
TX

City of Raymondville, Eziqueiel D.
Cavazos, TX

City of Raymondville, Mary Gutierrez, TX

City of Raymondville, Orland A. Correa,
TX

City of Raymondville, Yolanda Alexandre,
TX

City of South Padre Island, Alex Avalos, TX

City of South Padre Island, Alita Bagly, TX

City of South Padre Island, Angelique
"Nikki" Soto, TX

City of South Padre Island, Barry Patel, TX

City of South Padre Island, Dennis Stahl,
TX

City of South Padre Island, Julee LaMure,
TX

City of South Padre Island, Randy Smith,
TX

City of South Padre Island, Sam Listi, TX

City of South Padre Island, Willam A.
DeLibero, TX

Local Government Agencies (continued)

Foreign Trade Zone #62, Tony Rodriguez,
TX
 Jim Wells County Soil and Water
 Conservation District, TX
 Kenedy County, Allison Staus, TX
 Kenedy County, Cindy Gonzales, TX
 Kenedy County, Honorable Louis E. "Bud"
 Turcotte III, TX
 Kenedy County, Israel Vela, Jr., TX
 Kenedy County, Joe Recio, TX
 Kenedy County, Sarita Armstrong Hixon,
 TX
 Kenedy County, Veronica Vela, TX
 Kleberg County, David Rosse, TX
 Kleberg County, Honorable Jack Pulcher,
 TX
 Kleberg County, Honorable Rudy Madrid,
 TX
 Kleberg County, Joe Hinojosa, TX
 Kleberg County, Kira Talip, TX
 Kleberg County, Romeo Lomas, TX
 Kleberg County, Roy Cantu, TX
 Kleberg-Kenedy Soil and Water
 Conservation District, TX
 Laguna Madre Water District, Carlos J.
 Galvan, Jr., TX
 Point Isabel ISD, Dr. Lisa Garcia, TX
 Point Isabel ISD, Henry LeVrier, TX
 Port Isabel-San Benito Navigation District,
 Steve Bearden, TX
 Port of Brownsville, Ariel Chavez, TX
 Port of Brownsville, Beatrice Rosenbaum,
 TX
 Port of Brownsville, Carlos L. Garcia, TX
 Port of Brownsville, Carlos R. Masso, TX
 Port of Brownsville, Deborah L. Duke, TX
 Port of Brownsville, Donna Eymard, TX
 Port of Brownsville, Eduardo A. Campirano,
 TX
 Port of Brownsville, Jaime Martinez, TX
 Port of Brownsville, Joe Garza, TX
 Port of Brownsville, John Reed, TX

Port of Brownsville, John Wood, TX
 Port of Brownsville, Margie S. Recio, TX
 Port of Brownsville, Michael Davis, TX
 Port of Brownsville, Ralph Cowen, TX
 Port of Brownsville, Sergio Tito Lopez, TX
 Port of Brownsville, Stephen B. Fitzgibbons,
 TX
 Southmost Soil and Water Conservation
 District, TX
 Town of Laguna Vista, Ricardo Morado, TX
 Willacy County, Honorable Aurelio "Keter"
 Guerra, TX
 Willacy County, Honorable Bernard W.
 Ammerman, TX
 Willacy County, Honorable Eduardo "Eddy"
 Gonzales, TX
 Willacy County, Honorable Eliberto "Beto"
 Guerra, TX
 Willacy County, Honorable Fred Serrato,
 TX
 Willacy County, Honorable Judge Migdalia
 Lopez, TX
 Willacy County, Honorable Oscar Deluna,
 TX
 Willacy County Commissioner's Office,
 Roseana Ramirez, TX
 Willacy Soil and Water Conservation
 District, TX
Native American Groups
 Alabama-Coushatta Tribe of Texas, Brian
 Celestine, TX
 Apache Tribe of Oklahoma, Lyman Guy,
 OK
 Comanche Nation of Oklahoma, Jimmy
 Arterberry, OK
 Fort Sill Apache of Oklahoma, Jeff
 Haozous, OK
 Kickapoo Traditional Tribe of Texas, Juan
 Garza, TX
 Kickapoo Tribe of Oklahoma, Gilbert
 Salazar, OK
 Lipan Apache Tribe of Texas, Bernard F.
 Barcena, Jr., TX

Native American Groups (continued)

Tap Pilam Coahuiltecan Nation - American
Indians in Texas at the Spanish
Colonial Missions, Ramon Juan
Vasquez, TX
Tonkawa Tribe of Oklahoma, Donald L.
Patterson, OK

Libraries

Alicia Salinas City of Alice Public Library,
TX
Brownsville Public Library - Main Branch,
TX

Harlingen Public Library, TX
Port Isabel Library, TX
Reber Memorial Library, TX
Rio Hondo Public Library, TX
Robert J. Kleberg Public Library, TX

Companies and Organizations

A-3 Properties, L.P., TX
Alazan Farms L.P., TX
Armstrong Ranch, TX
Barbara Kay Houston Protection Trust, Attn:
Barbara Kay Houston Trustee, TX
Betka Land Partners, LTD, C/O Karen
Shales, LA
Bravura Investments, TX
Brown-Ullrich Valley Family, Texas
Limited Partnership, TX
Buejac LLC C/O Moody Bueford, TX
Buena Vista Gin Co., TX
Burns and Mayo Properties, LLC, TX
Cardenas Realty Co, Inc., TX
Cascade Enterprises INC, TX
Cecilia Margarita Dismukes & Monica
Patricia Burdette, Co-Trustees of the
Exempt Rebecca Zarate Trust, TX
Curtus A. Rhodes Trust, SC
Daniel Benjamin Vaughan GST Exempt
Trust, TX
Elliott Roberts Ranches, Inc., TX
Fatty Chem By-Products, Inc, TX
Fausan LTD C/O Fausto Yturria, Jr., TX
FCT Real Estate Holdings, LTD, TX

Fresnos 100 LLC, TX
Fresnos Investments LLC, TX
FWCL LTD, Wendell Johnson, TX
Genevieve Tarlton Dougherty Trust No. 2,
for the benefit of Ben F. Vaughan,
II, TX
Genevieve Tarlton Dougherty Trust No. 2,
for the benefit of Genevieve
Vaughan, TX
Heirs, Assigns and Devisees of Isabel Y.
Garcia and Francisca Yturria Yturria
Land & Cattle Co, TX
Hui-Ying Tsai Chiang C/O Upper Group,
Inc, CA
J.A. Garcia, Jr., Trustee of the J.A. Garcia,
Jr., Exempt Lifetime Trust, TX
J.S. Bridwell Co {Lajarita Farms}, TX
James Cullen Vaughan GST Exempt Trust
c/o Frost Bank, TX
John G. and Marie Stella Kenedy Memorial
Foundation, TX
John Turcotte Estate, TX
Julia Alexis Garcia, Trustee of the Julia
Alexis Garcia Exempt Lifetime Trust
& Julia Alexis Garcia, Trustee of the
John Anthony Garcia, Jr., Exempt
Lifetime Trust, GA
Keppel AmFELS, Inc., TX
Kevin Dougherty Exempt Subshare Trust,
TX
King Ranch INC, TX
King Ranch INC C/O Tracy Janik, TX
Kings Aqua Farms LLC, TX
Kostohryz Fossil Creek Family LP, TX
La Chiquita Investments LLC William
Richard Buchholz, TX
Laguna Encantada LP, TX
Lillie M. Tijerina Family Limited
Partnership, TX
Lisa Suzanne Mire, Trustee of the Lisa
Suzanne Mire Exempt Lifetime
Trust, LA

**Companies and Organizations
(continued)**

Lisette Garcia, Trustee of the Lisette
Garcia Exempt Lifetime Trust, TX
Lisette Garcia, Trustee of the Lisette
Garcia Exempt Lifetime Trust, TX
Llyod Funk Farms INC, TX
Los Fresnos Investments LLC, TX
Louis E. Turcotte, Jr. Estate C/O Joyce
Turcotte, TX
M.D. Wheeler LTD, TX
Marco A. Lara Family Trust, TX
Margaret Isabel Garcia Burns, Trustee of the
Margaret Isabel Garcia Burns
Exempt Lifetime Trust, TX
Mary & Frank Yturria Donated to U.S. of
America, TX
Mary Bertha Garcia Mallet, Trustee of the
Mary Bertha Garcia Mallet Exempt
Lifetime Trust, TX
Mary Bertha Garcia Mallet, Trustee of the
Mary Bertha Garcia Mallet Exempt
Lifetime Trust, TX
Mary Patricia Dougherty, Trustee of the
Mary Patricia Dougherty Trust, TX
Mary Victoria Malacaman, Trustee of the
Mary Victoria Newton Exempt
Lifetime Trust, LA
Melissa Dougherty Exempt Subshare Trust,
TX
MGB Ranch Partnership, LTD, TX
Montalvo Family Revocable Living Trust,
TX
Newton, Trustee of the Mary Victoria
Newton Exempt Lifetime Trust, LA
OSO Bailando, LTD., TX
Patrick Michael Vaughan GST Exempt
Trust, TX
Pembel Investments LP, TX
Pinnel Trust, C/O R. Williams, IL
R M Walsdorf INC, TX
Rachel Catherine Vaughan GST Exempt
Trust, TX

Rhodes Brothers, TX
Ricardo Nestor Zarate, Trustee of the
Exempt Ricardo Nestor Zarate Trust,
TX
Ricky Zarate, Alma Trust, TX
Rio Farms Inc., TX
Rio Grande Prop (Herb Fast Fest EST OF),
WA
Rio Grande Properties c/o Neal Talmadge,
TX
Rio Grande Properties, C/O Dianna Phelps,
TX
Roberts Elliott Ranch INC, TX
Seadrift Pipeline Corp, TX
Sebastian Land Ltd., TX
Selman Land & Livestock LLC, TX
Spanish Bayview Estates LTD, TX
SPI Properties Limited Liability Company,
Clayton Brashear, TX
Stella's Road Association, Inc., TX
Stone Brothers, TX
Swanberg Family Farms, LTD, TX
Sylvia Garcia, Trustee of the John A. Garcia
Marital Deduction Trust, TX
Texas Valley Grain, TX
The Leal Trust, TX
Turcotte Ranch LTD c/o Joyce Turcotte, TX
Union Pacific, NE
United Fuel Supply LLC, UT
Wescott Christian Center, CA
Willamar Gin Company INC., TX
Woolam Farms Leasing LLC, TX
Yountville Holdings LLC, TX
Yturria Land & Cattle Company, Real
Property, TX
Yturria-Smith Ranch Properties LTD, TX
Zena Stevens Estate, TX
905 / BMW, Inc., April A. Van Sickle, NC
A&T Port Mart Development Co., LLC.,
Michael K. Tidwell, TX
A.E.M. Assoc Empresarios Mexicanos,
Marco Saldivar, TX
ABF Freight Systems Inc., TX

**Companies and Organizations
(continued)**

Admiral Steamship Agency, TX
Adrianita, Inc., Mauricio Chavez, TX
AEP River Operations, IN
AEP Texas, E. Ray Covey, TX
AEP Texas Central Company, Francisco
Espinosa c/o John Garcia, TX
Aguilar Brothers, Inc., Josue Aguilar, TX
Alamo Concrete Products, Ltd., Allen
Walsh, TX
Alamo Fireworks, Inc., John and/or Michael
Girdley, TX
Allied Mineral Products, Inc., Magda Sosa,
TX
American Commercial Lines, TX
American Divers, TX
American Diving, TX
American Petroleum Institute, TX
American River Transportation Co., IL
Angelo Inter-Logistics, TX
Anita L. Gray dba Brownsville Sanitary,
Michael Perez, TX
Argo ES&H Services, LLC., Barry
Chambers, TX
Arroyo Colorado Audubon Group, Debbie
Warner, TX
Artiaga, Diana & Jesus, Jesus Artiaga, TX
Austin Star Detonator Co., Ignacio Reyes
III, TX
Auto Lineas Sigifredo Garcia Palacios,
Sigifredo Garcia Palacios, TX
Auto Lineas Sigifredo Garcia Palacios SA
de CV, Sigifredo Garcia Palacios,
TX
B & L Freight Service, LLC., Humberto
Torres, TX
Bay Bridge Texas, Shailesh "Sam" Vyas,
TX
Bay Bridge Texas, LLC., Shaileh "Sam"
Vyas, TX
Bayside Marine, Inc., Ruben Fuentes, TX

Bedoli Group, Inc. (All Star Metals), Nikhil
Shah, TX
Black Dragon Pirate Ship & Thriller High
Speed Boat, TX
Bob's Bay Fishing, TX
Bode's Bay Fishing, TX
Border Financial Services dba A-MEX,
Keyla Maradiaga, TX
Bougambillas Construction, LLC., Miguel
Cisneros, TX
Boys & Girls Clubs, Alex Verrara, TX
Breakaway Cruises, TX
BRG International Railroad, Norma Torres,
TX
Briggs Equipment Rental, Elizabeth Cantu,
TX
Brittain International, Inc., Alma Garcia, TX
Brownsville & Rio Grande International
Railway, LLC., Alan Simon, CO
Brownsville Gulfside Warehouse, Lee
Ostos, TX
Brownsville Gulfside Warehouse, Inc., Bob
Ostos, TX
Brownsville International Seafarer Center,
Rev. Andreas Lewis, TX
Brownsville Lions Clubs (Downtown &
West Chapters), Jose Alvear, TX
Brownsville Mooring, Rick Gomez, TX
Brownsville Port Isabel Shrimp Association,
Carlton Reyes, TX
Brownsville Public Utilities Board, John S.
Bruciak, TX
Brownsville South Padre Island Board of
Realtors, Texas Real Estate
Commission, Larry Jokl, TX
Bryant Industrial Services, LLC., Daniel
Bryant, TX
Burnell Marine & Supply, Inc., Charles
Burnell, TX
C&J Logistical Services, Crispin Flores, TX
C.R. Trucking, LLC., Sergio Garcia, TX

**Companies and Organizations
(continued)**

c/o Estate of Estate of Joseph Lee Ybarra &
Juan M Ybarra, Linda Ybarra Ponce,
Juan Manuel Ybarra, Jr., Jose Moises
& Ybarra, TX

c/o Wells Fargo Bank, Industry Consulting
Group, Inc, Josephina Ira Stone
Trust, TX

Canal Barge Company Inc., LA

Captain Memo Corp., Manuel Fayett, TX

Castellanos Corp., Marcos Hernandez, TX

Catholic Diocese of Brownsville (RGV),
Yolanda Escobar, TX

CCGS Holdings LLC., Mark Schrott, PA

Celtic Marine Corporation, LA

CITGO Petroleum Corporation, Charles
Milstead, TX

CITGO Petroleum Corporation, Charles
Milstead, TX

Claudia Rodriguez c/o James Key, Claudia
Rodriguez, TX

Close Encounters Paintball & Hobbies,
Maria Luisa Cortinas, TX

Co-Op Marine Railways, LLC., Raul
Garcia, TX

Co-Op Marine Railways, LLC., Raul
Garcia, TX

Corrigan Dispatch Company, Harold
Averill, TX

Cumberworth Investments, Inc., John
Cumberworth, TX

CVC Construction, Inc. dba Welding Works
International, Alfredo de la Fuente,
TX

Daniel B. Hastings, Inc., Matthew
Leyendecker, TX

Danny B Fishing Charters, TX

Deep Six Diving, TX

Deep Southtex Terminal, L.P., David
Duncan, OK

DEEP SOUTH-TEX TERMINAL, L.P.,
Fred Figueroa / David Duncan, TX

Defenders of Wildlife, McCrystie Adams,
CO

Defenders of Wildlife, Timothy M. Estep,
CO

Dionicio Manuel Lopez dba Port Public
Scale, D. Manuel Lopez, TX

Dix Agency Brownsville, LP, Robert A.
Ostos, TX

Dix Shipping Company, Lee Ostos, TX

Dolphin Docks, TX

Dolphin Rescue & Sea Life Nature Center,
Scarlet Colley, TX

Don E. & Christine Moore / Mark & Patty
Barnard, Don E. Moore, TX

Dow Chemical Company, Inc., TX

Dredgeservice, LLC, Charlie Ange, TX

Duro Standard Products Company, LLC.,
Fermin Mancilla, KY

EDGE Engineering and Science, LLC,
Jennifer M. McCoy, TX

EECO Electrical Design and Construction,
LLC., Victor Gonzalez, TX

Electro-HI, LLC., Cecilio Cavazos, TX

Elite Packaging Services, LLC., Reynaldo
de la Fuente, TX

Entrepure Industries, Inc. dba Avant
Premium Water & Ice., Ramiro
Gonzalez, TX

ESCO Marine Inc., Richard Jaross/Kris
Wood, TX

Falco, Inc., David Eymard, TX

Fel Glo, Inc., Felipe Mendez, TX

Fillette-Green Shipping Services, Scott
Roberson, TX

Firebird Bulk Carriers, Inc., Scott Bosard,
TX

Foreign Trade Zone Board, DC

Francisco Pena d/b/a Port Machine Shop,
Francisco Pena, TX

Friends of Laguna Atascosa National
Wildlife Refuge, TX

Companies and Organizations
(continued)

Friends of Laguna Atascosa National
Wildlife Refuge, Robert Severson,
TX
Frost Bank, Patti Ayala, TX
Frost Bank - Trust Real Estate, John G.
Kenedy, Jr. Charitable Trust, TX
G&O Shrimp Co., Inc., Gerald Pockrus, TX
G&O Shrimp Co., Inc., Gerald Pockrus, TX
Garcia, Raul dba Garcia Bookkeeping, Raul
Garcia, TX
Gavito, George Carlos, George Carlos
Gavito, TX
General Steamship Corporation, Ltd.,
Thomas Miller, TX
Gladys Porter Zoo – Kemps Ridley Turtle
Conservation, Dr. Patrick Burchfield,
TX
Gonzalez Trawlers, Inc., Jorge Gonzalez,
Jr., TX
Gonzalez, Jorge c/o Raul Garcia
Bookkeeping, Jorge Gonzalez, TX
Gulf Facilities, Ken Schaefer & Nico
Schaefer, TX
Gulf Facilities, Inc., Ken Schaefer, TX
Gulf Harbor Shipping, LLC, Gilbert L.
Ortega, TX
Gulf Stream Marine, Mark Hoskins, TX
H. Sáenz, Jr. Inc., Beto Saenz, TX
Happytide Charters, TX
Harding Foundation, Glen Harding, TX
Har-Vest, a Texas General Partnership, Har-
Vest, TX
Hayden, Thomas A. dba Oceanus Intl.,
Thomas A. Hayden, TX
Heavy-Duty Equipment, Inc., Lee Ostos, TX
Hodgson, Mark, Les Hodgson, TX
Ingram Barge Line, TN
Inspectorate, TX
Intercoastal Salvage, Inc., Nancy Gaytan,
TX
Interlube Corp., Inc., Diana de la Pena, TX

International Income Tax Service, LLC.,
Elmer J. Shull, TX
International Income Tax Service, LLC.,
Elmer J. Shull, TX
International Longshoremen No. 2995, Roy
de los Santos, TX
International Shipbreaking, Ltd., Robert
Berry, TX
Inter-Transfer,-TRIMAC INC., TX
Iron Mike Marine, Inc., Randy Chambers,
TX
Iron Mike Marine, Inc., Randy Chambers,
TX
Isabella Charters, TX
Island Outfitters, TX
Israel & Yolanda Linarte dba Marine &
Industrial Safety, Yolanda Linarte,
TX
ISS Marine Services, Inc. dba Inchcape
Shipping Services, Glenn Foster, TX
Jacquelyn & Gordon Williams c/o Gordon's
Bait & Tackle., Jackie Williams, TX
Jonick Lopez International Transport &
Warehouse, Sergio T. Lopez, TX
Jonick-Lopez International Transport, LLC,
Sergio T. Lopez, Jr., TX
JTM II, LTD, Marshall Ray, TX
Juan's Electric, Juan Delgadillo, TX
K&L Gates LLP, David L. Wochner, DC
K&L Gates LLP, Jennifer L. Bruneau, DC
KBSB, Poul Bous, TX
Keep South Padre Island Beautiful
Committee, Susan Dalton, TX
Keppel-AmFELS, G.S. Tan, TX
Kirby Inland Corp., TX
Landro, Inc. dba S T Marine, Leonel
Alejandro, TX
Lighthouse Docks, Inc, Jack G. Carinhas,
Jr., TX
Linda Lou Boat Corporation, Jack M.
Waller, TX
Linwood Trawlers, Inc. c/o Raul Garcia,
Dolby Linwood, TX

**Companies and Organizations
(continued)**

Loera Customs Brokerage, Minerva Loera,
TX
Loma Alta Skeet & Trap, Inc., Scott
Vanderpool, TX
Lone Star Chapter of the Sierra Club,
Reggie James, TX
Lone Star Charters, TX
Lower Rio Grande Valley Group, Sierra
Club, Jim Chapman, TX
Lower Rio Grande Valley Sierra Club,
Stefanie Herweck, TX
Luma Trading, Inc., Kenny Schauer, TX
M & M Mooring Company, Mark Clive, TX
M/V Challenge 42, Inc., Raul Cervantes, TX
Magic Valley Concrete, LLC., Rufino
Garza, TX
Magic Valley Electric Cooperative, Inc.,
John W. Herrera, TX
Maquilogistics, Carlos Ruiz, TX
Maria Elena, Inc., Seth A. Sanders, TX
Maria Elena, Inc., Seth A. Sanders, TX
Marine Metal, Omar Perez, TX
Marine Metal, Inc., Omar Perez, TX
Marine Railway, Inc., Greg Londrie, TX
Marine Refrigeration Co., Andrew Jurek,
TX
Marine Salvage & Services, Inc., Billy
Kenon, TX
Martec Leasing LLC, Ania Mierzejewska,
NJ
Martin Gas Marine, TX
Martinez Sylvia dba Taqueria Sylos, Sylvia
Martinez, TX
Maverick Terminals, Canevari Castan, TX
Maverick Terminals Brownsville, LLC,
Canevari Castan, TX
Mesquite Farm, LLC., Ray Loop, TX
Miss Anid, Inc., Manuel Sanchez c/o Raul
Garcia, TX
Monita, Inc. c/o Garcia Bookkeeping,
Benjamin Lopez, TX

Monita, Inc. c/o Garcia Bookkeeping,
Benjamin Lopez, TX
Moore, Wenn dba Moore Diesel Service,
Wenn Moore, TX
Mr. AMIGO Association, Cynthia Garza
Galvan, TX
MTZ Group, LLC. dba Allied Trading,
Artemio Martinez, TX
National Seafoods, Inc., William E. Kenon,
TX
NextDecade Corporation, Komi Hassan, TX
NextDecade Corporation, S. Diane Neal, TX
Norberto Perez, C.P.A., P.C., Norberto
Perez, TX
Norberto Perez, C.P.A., P.C., Norberto
Perez, TX
NPS Intermountain Regional Office,
Christine Whitacre, TX
Nuga Diesel, Inc., Fernando A. Nunez c/o
Tanya Nunez, TX
Nustar Logistics, L.P., Carin Hoch, TX
Ocean Port Maintenance, Inc., Jorge
Gonzalez, Jr., TX
Ochoa, Marcelino, Marcelino Ochoa, TX
Ochoa, Marcelino, Marcelino Ochoa, TX
Oil Patch Fuel & Supply, Carl Gayman, TX
Oil Patch Fuel & Supply, Inc., Carl
Gayman, TX
One Cypress Terminals, Inc., Mike
McCann, TX
One Cypress Terminals, Inc., Mike
McCann, TX
Optimum Quality Transfers, LLC, Juan A.
Turrubiates, TX
Osprey Deep Sea Fishing, TX
Osprey Fishing Trips, Robert Tyler, TX
P.M.I. Services North America, Inc., Darryn
Tollefson, TX
Parker & Company, Abel Medina, TX
Parker & Company, David Dubois, TX
Parker & Company, Steve Muschenheim,
TX
Parker, Carl or Les, Les Parker, TX

**Companies and Organizations
(continued)**

Parrot Eyes Fishing Charters, TX
 Paul Shane dba TLO Logistics, Paul Shane,
 TX
 Pearl South Padre Hotel, Rene Anthony
 Valdez, TX
 Pen III, LLC dba Shallow Water Marine,
 Ernesto Pena, III, TX
 Penmar Systems, Inc., Kay Krapf, PA
 Pete Hurley dba Pete's Fleet, Alicia Hurley,
 TX
 Philip T. Cowen, TX
 Plitt Leasing Co., Ltd., Walter Plitt III, TX
 Pollo's Diesel/Mota's Refrigeration, Ramon
 Ortega, TX
 Port Elevator-Brownsville, Craig Elkins, TX
 Port Isabel Chamber of Commerce, TX
 Port of Brownsville Public Scale, Inc., TX
 Port Restaurant, Luis Ricardo Cortinas, TX
 Port Warehouse Properties, L.P., John F.
 Cowen, TX
 Pull-A-Part, LLC, Ross Kogon, GA
 Purata Trawlers, Inc., Pedro Purata, TX
 Quality Weighing Service, Inc., Bob Ostos,
 TX
 R. Soto Transport Truck, Roberto Soto, TX
 R.E.C.L. Inc., President, R.E.C.L., Inc., TX
 R.M. Walsdorf, Inc., R.M. Walsdorf, TX
 Raba Kistner Consultants, Carlos Ceballos,
 Jr., TX
 Raba Kistner Consultants, Elos Arredondo,
 Jr., TX
 Raul Garcia Bookkeeping, Jorge Gonzalez,
 TX
 Ray Wolf Commercial Diving Incorporated,
 TX
 Razorback LLC dba Diamondback Pipeline,
 LLC., Kevin Garcia, CO
 Rental World, Robert Suarez, NJ
 Respeta Tu Playa, Albert L. Scharen, TX
 Reyes Marine Industries, Inc., Carlton
 Reyes, TX

RGV Nature Coalition, Nancy Millar, TX
 Rhodes Farms Partnership, R. Dale and
 Mary Rhodes, TX
 Rhodes Farms
 Dane & Dale Rhodes, Dane and Dale
 Rhodes, TX
 Ricardo A. Cortinas dba Port Restaurant,
 Ricardo A. Cortinas, TX
 Rio Grande Council, Boys Scouts of
 America-Laguna, Ernesto Carballo,
 TX
 Roca Construction Co., Ricardo Roca, Sr.,
 TX
 Rodco Marine Supply, Inc., Juan Rodriguez,
 TX
 Rodicel, Inc., Rafael Blanco Orquin, TX
 Romero, Guillermina, Guillermina Romero,
 TX
 Roser & Cowen Logistical Service, Danny
 Lopez, TX
 Roser & Cowen Logistical Service, Neto
 Roser, TX
 Roser Customs Service, Inc., Rico Roser,
 TX
 RSC Equipment Rental, Chris Lowery, TX
 RTW Properties, L.P., Bill Mallory, OK
 RTW Properties, LP, Bill Mallory / Fred
 Figueroa, TX
 Schaefer Stevedoring, Ken Schaefer, TX
 Sea Breeze Marine, Inc. c/o Raul Garcia,
 Juan Gaona, TX
 Sea Kirk, Inc. d/b/a La Manana, Fred
 Feurtado, TX
 Sea Kirk, Inc. dba La Manana, Fred
 Fuertado, TX
 Sea Ranch Marina, TX
 Sea River Maritime (Exxon Shipping), LA
 Sea Turtle Inc., Jeff George, TX
 Sea Turtle, Inc., Jeffrey A. George, TX
 Sea Turtle, Inc., Shane Wilson, TX
 Seadrift Pipeline Corp, Jere Dial, TX
 Seahorse Transportation, Inc., Mark Haynes,
 TX

Companies and Organizations
(continued)

Shoreline Task Force, Paul Munarriz, TX
 Sierra Club, Harry Libarle, CA
 Sierra Club, Nathan Matthews, CA
 Signet Maritime Corporation, Barry Snyder, TX
 Signet Maritime Corporation, Ida Treviño, TX
 Snodgrass, Inc., Sam Snodgrass, TX
 South Padre Island Chamber of Commerce, TX
 South Padre Island Watersports, TX
 South Texas Native Coastal Plant Center, T. J. Lassen, TX
 Southern Recycling, LLC., Robert Berry, LA
 Southern Wave, TX
 Southern Wave Sailing Tours, TX
 Southwestern Motor Transport, Inc., TX
 Span Glass, Kurt Holmes, TX
 Spaw Glass, Eric C. Kennedy, TX
 SPI Birding & Nature Center, Cristin Howard, TX
 SPI Fish Killer Tours, TX
 Stampede Energy, LLC., Peter Schmar, TX
 Stolt Transportation Services, TX
 Subsea 7, Stuart Redpath, TX
 Sunbelt Transport, Inc., TX
 Surfrider Foundation South Texas Chapter, Robert Nixon, TX
 T. Parker Host Gulf, Inc., Randy Tate, TX
 T.D. American Limestone Products, LLC, Liliana Treviño, TX
 TCS Brokerage, Martha Davila, TX
 Tejas Equipment Rental, Esteban Lozano, TX
 Terry 2005 Family Partnership, LTD, Peggys Terry or Valerie S Terry, TX
 Texas Gold Shrimp Tour, TX
 Texas Gulf Trawling, TX
 Texas Marine Ventures, Inc., Juanita S. Salazar, TX

Texas Shrimp Association, Andrea Hance, TX
 Texas Sportfish, TX
 Texas State Technical College, Stella E. Garcia, TX
 The Brazos Santiago Pilots, Captain Grant S. Wilson, TX
 The Brazos Santiago Pilots, Captain Jonathan P. Willett, TX
 The Original Dolphin Watch, TX
 The Valley Land Fund, Debralee Rodriguez, TX
 TM Cruillas, LLC., Oscar De la Garza, TX
 TransMontaigne Operating Company, L.P., Kevin Garcia, TX
 Transporte Internacional Lopez Ochoa, SA. de CV., Ruben Lopez, TX
 Transpuga, SA de CV, Guadalupe Facundo, TX
 Two Fishing Friends, Inc., Emigdio Cruz, TX
 Two Fishing Friends, Inc., Emigdio Cruz, TX
 U.S. Offshore, Inc., Robert Berry, TX
 United Way of Cameron County, Traci Wickett, TX
 Valero, James V. Stegall, TX
 Valley Crossing Pipeline, LLC, TX
 Valley Lubricants, Inc., David Eymard, TX
 Valley Proud Environmental Council, Mary Jane Shands, TX
 Valley Trucking Company, TX
 Venmar Shrimp, Inc., Jose Manuel Aponte, TX
 Venmar Shrimp, Inc., Jose Manuel Aponte, TX
 Volunteer Barge & Transport, Inc., TN
 Vulcan Construction Materials, LP, David Farrar, TX
 Wolfe Sandbalsting & Industrial Painting, Don Wolfe, TX
 Woodfin Trade Services, Inc., Mike Woodfin, TX

Individuals

A Patterson, TX
A.J. Shewmaker, TX
Aaron Fuller, TX
Abby Findley, TX
Abde Esmaili, TX
Abdulmalik Nathani, TX
Abel Silva, TX
Abigail Burns, TX
Abigail Garza, TX
Adam C, TX
Adam Hudson, TX
Adam Thaler, TX
Adam Zablelski, TX
Adelaido Gonzalez, Sr. ET AL, TX
Adolfo E. Cordova, TX
Adolfo J. Cervera, TX
Adrian Fonceanda, TX
Adrian P. Bernal, TX
Adrian Ruben Correa, TX
Adriana Garcia, TX
Adriana Gonzalez, TX
Adriana Martinez, TX
Adrienne Inglis, TX
Aflen McReynolds, TX
Agustin Molina, TX
Aimee Legrand, TX
Aimee Murua, TX
Al Solis, TX
Al Stlouis, TX
Alan Diaz-Santana, TX
Albert Berman, TX
Albert Gomez, Jr., TX
Albert H. Dean, III C/O Evelyn Dean, TX
Albert Lee & Norine Smith, TX
Aleah Hellman, TX
Aleida Garcia, TX
Alejandro Flores, TX
Alene Edmonds, TX
Alessandria Fernandez, TX
Alex Chau, TX
Alex Herrera, TX
Alex Meza, TX

Alexa Allison, TX
Alexander Clayton, TX
Alexander Grant, TX
Alexander Helou, TX
Alexander Lewis, TX
Alexandra Mitchell, TX
Alexis Bay, TX
Alexis Burt, TX
Alfied Dabrowski, TX
Alfonso Saladaoa, TX
Alfonso Zavala, TX
Alfred Davila, TX
Alfredo Godoy, Jr., TX
Alfredo L. & Merida Garcia, TX
Alfredo L. Mares, TX
Alice Bax, TX
Alice Geraldine Rhodes, TX
Alice Kuchenthal, TX
Alice Nicholson, TX
Alice Nicholson, TX
Alice Wood, TX
Alicia Baldovinos, TX
Alicia lopez, TX
Alison Fletcher, TX
Alison Kirsch, CA
Alix Flores, TX
Allen Olson, MN
Allison Metzger, TX
Allison Vitek, TX
Allison Zborowski, TX
Alma G. Leal, TX
Alma Linda Benavidez, TX
Alyssa Cummings, TX
Alyssa Gonzalez, TX
Alyssa Melton, TX
Amado Chavez, Jr., TX
Amanda Caldwell, TX
Amanda Hollis, TX
Amanda Kay, TX
Amanda Mahfood, TX
Amaya Lee, TX
Amber Manske, TX
Amber Manske, TX

Individuals (continued)

Amber Maske, TX
Amends McNeese, TX
Ami Wisdom, TX
Amparo B de Navarro, TX
Amy Ardington, TX
Amy Dixon, TX
Amy Lagrone, TX
Amy Mullin, TX
Amy Quate, TX
Amy Summerfelt, TX
Ana Damian, TX
Ana Fernandez, TX
Ana Lois-Borzi, TX
Ana Reza, TX
Ana Washington, TX
Anal Lisa Martinez, TX
AnaLisa Crandall, TX
Anatella Cisneros, TX
Andre Hernandez, TX
Andrea Frank, IL
Andrea Gonzalez, TX
Andrea Lopez, TX
Andrea MacRae, TX
Andrea Maxwell, TX
Andrea Riebeling, TX
Andres and Laurel Alvarez, TX
Andres Garcia, TX
Andres Ramos, TX
Andres Sanchez III, TX
Andrew Hardin, TX
Andrew Hernandez, TX
Andrew Lyall, TX
Andrew William Turcotte, TX
Andrew Zwarun, TX
Andrews Fortenberry, TX
Andrienne Inglis, TX
Andy Sheppard, TX
Angela Barrera, TX
Angela Millis, TX
Angela Pardo, TX
Angela Wilkinson, TX
Angelika Altum, TX

Angelika Braxton, TX
Angelika Potempa, TX
Angelita O'Connor, TX
Angely Demobio, TX
Angie Reeves, TX
Anil Prabhakar, TX
Animae Chi, NY
Animae Chi, CA
Anita Cannata Nowell, TX
Anita Faulkner, TX
Anita Pauwels, TX
Anita Ro, TX
Anita Santos, TX
Ann Banks, TX
Ann Breuer, IL
Ann Cistales, TX
Ann Gallaway, TX
Ann J. Paddock, TX
Ann Kaiser, TX
Ann Lange, TX
Ann Loera, TX
Ann Magana, TX
Ann Mathes, TX
Ann Millard, TX
Ann Nau, MD
Ann Sadtler, TX
Ann Towns, TX
Anna George, TX
Anna Gonzalez, TX
Anna Lee Garcia, TX
Anna Obek, TX
Anna Tompkins, TX
Anna Towns, TX
Anna Woods, TX
Annalisa Peace, TX
Anne and John Freas, PA
Anne Caton, TX
Anne Easterling, TX
Anne Jones, TX
Anne L. Ferguson, TX
Anne L. Idsal, TX
Anne L. Idsal, TX
Anne Lindsey, TX

Individuals (continued)

Anne Varljen, TX	Athenea Hughes, TX
Annetta Gower, TX	Audrey Jordan, TX
Annette Christopher, TX	Audrey Patton, TX
Annette Mcanally, TX	Aurora R. Rojas & Antia R. Cantu, TX
Annie Caton, TX	Austin Gray, TX
Annie Winstead, TX	Ava Blankenship, TX
Annmarie Wilson, TX	Ava Germaine Leal, TX
Anthea Wray, TX	B Baker, TX
Anthea Wray, TX	B. Elisa Filippene, TX
Anthony McCradic, TX	Barbara & Roby Odom, TX
Anthony Montapert, CA	Barbara Anderson, TX
Anthony Murray, TX	Barbara Burton, TX
Anthony Whiting, TX	Barbara Burton, TX
Antonio Alvarez, Jr., TX	Barbara Campbell, TX
Antonio Bayona, TX	Barbara Eckert, TX
Apocalipsis A. Robinson, TX	Barbara Ehanann, TX
April Pafford, TX	Barbara Elliott, TX
Arantza Alvarado, TX	Barbara Fletcher, TX
Archana Parushotham, TX	Barbara Hill, TX
Arely Valerio, TX	Barbara Kantola, TX
Ariana Blanco, TX	Barbara Martin, TX
Ariana Garcia, TX	Barbara McGaffey, TX
Arisa Castillo, TX	Barbara Mead, TX
Armando C. Arredondo, TX	Barbara Methvin, TX
Armando Chaves, TX	Barbara Mojica, TX
Armando Herrera, TX	Barbara Montoya, TX
Armando Morales, TX	Barbara Richert, TX
Arnold Haber, TX	Barbara Rogers, TX
Arnoldo & Cruz Del Toro, TX	Barbara Sargent, TX
Arnoldo Becho, TX	Barbara Swearingen, TX
Arnoldo Serna, TX	Barbara Tomlinson, WA
Arnulfo Rodriguez, TX	Barbara Veit, TX
Arthur C. Smith, TX	Barbara Whitener, TX
Arthur Emshoff, TX	Barry Clar, TX
Arthur Payne, TX	Barry Phelps, TX
Asad Rabber, TX	Bea Bee, TX
Ashley Castillo, TX	Becky Chambers, TX
Ashley Jones, TX	Becky Wharton, TX
Ashley Nelson, TX	Becky Wharton, TX
Ashton Moore, TX	Belda Gomez, TX
Ashvin Bhatt, TX	Belen Aguirre, TX
Asucena Salinas, TX	Belen Garcia, TX
	Ben Ortiz, TX

Individuals (continued)

Benard Colvin, TX
Benito Chavez Jr, TX
Benito Munoz, Jr., TX
Benjamin and Lu Gomez, TX
Benjamin Liles, TX
Benjamin Matlock, TX
Benjamin Zink, TX
Bennie Scott, TX
Berenice Bissett, TX
Berenice Cedillo, TX
Bernie Johnson, TX
Bertha Janis, TX
Beth Ann Lemm, TN
Beth Ann Sikes, TX
Beth Bowling, TX
Beth Duval, TX
Beth Wernick, TX
Bethany Lara, TX
Betsy Lambert, TX
Bett Mcdugald, TX
Bettie Winsett, TX
Betty Alexander, TX
Betty Chastain, TX
Betty Conley Mann, TX
Betty Orwan, TX
Betty Verbeke, TX
Beverly Knox, TX
Beverly Polan, TX
Beverly Ray, TX
Beverly Soanes, TX
Beverly Veltman, TX
Beverly Walker, TX
Beverly Zweig, MN
Bhavin Sanghavi, TX
Bhuvanesh Bhatt, TX
Bianca Hayes, TX
Bianca Michuda, TX
Bianca Rivas, TX
Bianey Ortega, TX
Bibi Lafleur, TX
Bill Burns, TX
Bill Hoenes, TX

Bill Holt, TX
Bill Lee, TX
Bill Moigenstem, TX
Bill Rogers, TX
Bill Schuler, TX
Bill Wilson, TX
Billie Stapleton, TX
BillieJean Jones, TX
Billy Burnett, TX
Black Schroeder, TX
Blake O'Quinn, TX
Blanca Cardoza, TX
Blevins Calvin, TX
Bob Carver, TX
Bobbie Flowers, NY
Bonnie and Ernie Rodriguez, TX
Bonnie Clements, TX
Bonnie Clements, TX
Bonnie Lynn MacKinnon, TX
Bonnie Mathias, TX
Bonny Gatchel, TX
Boyd Reedy, TX
Brad Hall, TX
Brad McKinney, TX
Brad Watson, TX
Bradford Hindley, TX
Brandon Batton, TX
Brandon Cameron, TX
Brandon Flores, TX
Brandt Mannchen, TX
Brandy Gibbs, TX
Brandye Brown, TX
Brant Kotch, TX
Braun Paul E, TX
Bren Cozad, TX
Brenda C. Hernandez-Barron, TX
Brenda Gutierres, TX
Brenda L. Diaz, TX
Brenda Loveless, TX
Brenda Sears, TX
Brenda Wyrick, TX
Brenna Bales, TX
Brent Bray, TX

Individuals (continued)

Brett Tharp, TX
Brian Abernathy, TX
Brian Boswell, TX
Brian R. & Betty B. Baker, OK
Brian Raising, TX
Brian Schill, TX
Brian Strasters, TX
Briana Schroeder, TX
Briana Schroeder, TX
Brigitte Dalmolin, TX
Britlin Hemingway, TX
Britney Marutan, TX
Britt Harnway, TN
Brittney Collins, TX
Brooke Barajas, TX
Brooke Shannon, TX
Bruan Hilton, TX
Bruce Counley, TX
Bruce Justice, TX
Bruce N. Edwards, Jr., TX
Bruce Ross, TX
Bruce Ross, TX
Bryan and Susan Roberts, TX
Bryan Hilton, TX
Bryan Teague, TX
Bryan Wing, TX
Bud See, TX
Buena Burnett, TX
Byron Pratt, TX
C G, CA
C. Gene & Leora Taubert, TX
Caitlin Mason, TX
Cale Kennamer, TX
Calvin R. Byrd, TX
Cameron Babberney, TX
Cameron Pride, TX
Camilla Figueroa, TX
Camille Converse, TX
Canales Alma Rosa, TX
Candice Moutte, TX
Candyce Eskew, TX
Capri Sims, TX

Carl C. Conley, C/O Clowe, Carla C.
Haynes, TX
Carla Lents, TX
Carla Marolt, TX
Carloe Courtney, TX
Carlos F Alonso & Margot Vila, MEXICO
Carlos Galvan, TX
Carlos Garcia, TX
Carlos R. Canas and Nydia D. L. Canas, TX
Carlos Uria, TX
Carly Gilpin, TX
Carly Impoco, TX
Carmen Alamo, TX
Carmen Alvarez, TX
Carmen Cc, TX
Carmen Druke, TX
Carmen L. Garcia, TX
Carol Box, TX
Carol Creech, TX
Carol Fly, TX
Carol Grimm, TX
Carol Jean Wuis, TX
Carol Margos, TX
Carol Nash, TX
Carol Nicks, TX
Carol Pennington, TX
Carol Rausch, TX
Carol Sander, TX
Carol Tate, TX
Carol Thompson, PA
Carolina Casas, TX
Caroline Guajardo, TX
Caroline Hansley, NC
Caroll Duncan Stone & Stuart Reagan
Stone, C/O Willamar Gin Company
LP, TX
Carolyn Avey, TX
Carolyn Downs, TX
Carolyn Hassis, TX
Carolyn Nieland, TX
Carolyn Render, KS
Carolyn Rich, TX
Carolyn Ridenour, TX

Individuals (continued)

Carolyn Walker, TX
Carolynn Snyder, TX
Carrie Watson, TX
Carrie Weatherly, TX
Carrol Spears, TX
Carroll Dartez, TX
Carter Naomi, TX
Carter Neal, TX
Caryn Perez, TX
Casey Pittman, TX
Cassandra Cosay, TX
Cassidy Mejia, TX
Catalina A Garcia, TX
Catherine Bass, TX
Catherine Davis, TX
Catherine Livingston, TX
Catherine Milbourn, TX
Catherine Oleksiw, TX
Catherine O'Neill, TX
Catherine Pleasants, TX
Catherine Russell, TX
Catherine Van Zanten, TX
Catherine Whiteside, TX
Catherine Willmann, TX
Cathy Carpentier, TX
Cathy Chesser, TX
Cathy Garza, TX
Cathy Harbert, TX
Cathy Hazzard, TX
Cathy Mane, TX
Cathy Matusoff, TX
Cathy Ramsey, TX
Cathy Wallace, TX
Cathy Wisel, TX
Cecelia Bliss, TX
Cecelia DeMello, TX
Cecil O. Braun, TX
Cecilia Dunbar Hernandez, TX
Cecilia Garcia Schulz, TX
Cecilia Zamora, TX
Cecily Runyon Wilson, TX
Celeb Rudolph, TX

Celeste Hagaman, TX
Celestino Alaniz, TX
Celestino Gallegos, TX
Celia Alonso, TX
Celia Garret, TX
Celine Capiccioni, TX
Cemy Ruiz, TX
Cesar Rodriguez, TX
Chad Dunlap, TX
Chad Fuqua, TX
Chandan Talukdar, TX
Charis Fleming, TX
Charlene Williams, TX
Charles & Claudia Morgan, TX
Charles Anderson, TX
Charles Arlington, TX
Charles B Schmidt, TX
Charles Foreman, TX
Charles Franck, TX
Charles Hobbs, TX
Charles Irvine, TX
Charles Kennedy, Sr. and Charles Kennedy,
Jr., TX
Charles Lewis, TX
Charles Ochoa, TX
Charles Spencer, TX
Charles Tu, TX
Charles W. Rod, III, TX
Charlotte A. Barker, TX
Charlotte Barker-Stanton, TX
Charlotte Schmidt, TX
Charlotte Wells, WA
Charmaine Berry, TX
Cheri Long, TX
Cherie Ware, TX
Chery L. Pressgrove, TX
Cheryl Cates, TX
Cheryl Kay, TX
Cheryl Morris, TX
Cheryl Smith, TX
Cheryl Tanski, TX
Cheyenne Weaver, TX
Chia Gillory, TX

Individuals (continued)

Chris Clodfelter, TX
Chris Nicolosi, TX
Chris Ruiz, TX
Chris Stubbs, TX
Chris Watenpool, TX
Chrissie Rappolt, NY
Chrissy Daly, TX
Christa Gunn, TX
Christen King, TX
Christian Richer, TX
Christian Rodriguez, TX
Christiana Brinton, TX
Christina Cochran, TX
Christina Evans, TX
Christina Gonzalez, TX
Christina Hartline, TX
Christina Hennigan, TX
Christina Mann, TX
Christina Rivera, TX
Christina Rodriguez, TX
Christina Salazar, TX
Christina Scattergood, TX
Christina Villareal, TX
Christina Williamson, TX
Christine De Angelis, TX
Christine Lockhart, TX
Christine Neef, TX
Christine Rakestraw, TX
Christine Wordlaw, TX
Christopher Basaldu, TX
Christopher Dowling, TX
Christopher Hathaway, TX
Christopher Hathaway, TX
Christopher Hudson, TX
Christopher Huron, TX
Christopher Keller, TX
Christopher Lujan, TX
Christopher Mazza, TX
Christopher Panayi, NY
Christopher Semtner, TX
Christy Bergner, TX
Chuck & Joan McDonald, TX

Chuck Lorenz, TX
Cima Malkhassian, TX
Cinda Pace, TX
Cindy Arellano, TX
Cindy Brittain, TX
Cindy Burzinski, TX
Cindy Crutcher, TX
Cindy McReynolds, TX
Cindy Spoon, TX
Cindy Symington, TX
Cindy Trimm, TX
Cinella Reyes, TX
City of Houston, TX
CJ Vaughn, TX
Claire Bush, TX
Claire Kenney, TX
Claire Lawrence, TX
Claire Morris, TX
Claire Ruffin, TX
Clare Freeman, TX
Clare McCollam, TX
Claud & Sharon Bramblett, TX
Claudia Aldape, TX
Claudia Morgan, TX
Claudia Richner, TX
Claudio Salazar, TX
Clif Jordan, TX
Clinton Chamberlain, TX
Clinton McDowell, TX
Clive O'Donoghue, TX
Clyde McManus, TX
Colby Hardison, TX
Cole Ethridge, TX
Colleen Butterfield, TX
Colleen Dieter, TX
Colleen Lobel, CA
Colleen Mchatton, TX
Collin McGrath, TX
Concepcion Combe, et al., TX
Connie Curtis, TX
Connie Leblanc, TX
Connie Mitchell, TX

Individuals (continued)

Constante Cabrales Fray M & Bautista De
Constante Carmen, TX
Corliss Crabtree, TX
Corni Weig, TX
Cory Atkinson, TX
Courtney England, TX
Courtney Grigoryev, TX
Courtney Stollon, TX
Courtney Sulak, TX
Craig and Patty Jones, TX
Craig Nazor, TX
Craig Parker, TX
Craig Tatum, TX
Crala Tatum, TX
Cristela Olivarez, TX
Cristela Sifuentez, TX
Cristiana Ginatta, TX
Cristina Garcia, TX
Cristina Martinez, TX
Crystal Mitchell, TX
Curls Orr, TX
Cyndi Rutherford, TX
Cynthia Ann Aragon, TX
Cynthia Curtis, TX
Cynthia Garza, TX
Cynthia Gomez, TX
Cynthia Maguire, TX
Cynthia McFall, TX
Cynthia Meyer, TX
Cynthia Paquette, TX
Cynthia Perez, TX
Cynthia Pizaña, TX
Cynthia Prince, TX
Cynthia Ratliff, TX
Cynthia San Mane, TX
Cynthia Sturlin, TX
Cynthia Taylor, TX
Cynthia Williamson, TX
D Feagin, TX
D Garcia, TX
D Zajac, TX
D. Foster, TX

Daila Yazmin Molina Sanchez and Felipa de
Jesus Sanchez, TX
Daina Owen, TX
Daisy Arellano, TX
Dale & Mary Erdman, TX
Dale & Mary Erdmann, TX
Dale Bulla, TX
Dali Suarez, TX
Dalia Hernandez, TX
Dallas Windham, TX
Dan Everly, TX
Dan Harrison, TX
Dan Owings, TX
Dan Roark, TX
Dan Sullivan, TX
Dan Sundberg, TX
Dana Meeks, TX
Dana Spottswood, TX
Dana Yarger, TX
Daniel Cisneros, TX
Daniel Diaz, TX
Daniel Dwyer, TX
Daniel Llanes, TX
Daniel McKeen, TX
Daniel Melendez, TX
Daniel Ponce, TX
Daniel S Griffen, TX
Daniel Summers, TX
Daniel Velez, TX
Daniela Lopez, TX
Danielle Cabrera, TX
Danielle Cole, TX
Danielle Cole, TX
Danielle Ivie, TX
Danielle Lopez, TX
Danielle Mireles, TX
Danise G. Acevedo, TX
Danna Mcvey, TX
Danny Brionis, TX
Danny Davis, TX
Daphne Endress, TX
Darcy Green, TX
Darice Whitten, TX

Individuals (continued)

Darilyn Schlie, TX	David Michalek, TX
Darlene Aksoy, TX	David Mulcihy, TX
Darren Blais, TX	David Mulcihy, TX
Darren Huff, TX	David Newfeld, TX
Darren Huff, TX	David O'Keeffe, TX
Darryl S. Simon, TX	David Ramirez, TX
Darvin Oliver, TX	David Robledo, TX
Dat Lock, TX	David Ruda, TX
Dave and Rita Cross, TX	David Sanchez, TX
Dave Byrne, TX	David Stackhouse, TX
Dave Cortez, TX	David Suissa, TX
Dave Mills, TX	David Trevino, TX
Dave Paris, TX	David Will, TX
Dave Rawlins, TX	David Zack & Troy D. Shewmaker, TX
David & Vicki Shewmaker, TX	David Zambie, TX
David A. Smith, TX	David Zambie, TX
David Altmeyer, TX	Dawn Langerock, TX
David B. Trant, MD, OK	Dawn Manning, TX
David Bell, TX	Dawn Reed, TX
David Bigwood, TX	Dawn Unruh, TX
David Bissett, TX	Dawne Meneguzzo, TX
David Broer-LeRoux, TX	Dean Richardson, TX
David Burkhart, KY	Dean Thompson, TX
David Burnett, TX	Deana Phillips, TX
David Campbell, TX	Deanna Bowling, TX
David Carter, TX	Deanna Pena, TX
David Cooper, TX	Deb Sparshott, TX
David Cottingham, TX	Deb Wills, CA
David Councilman, MN	Debbie Beane, CA
David Danna, TX	Debbie Beehull, TX
David De La Pena, TX	Debbie Choi, TX
David Derma, TX	Debbie Crosby, TX
David Garcia, TX	Debbie Hyde, TX
David Gonzalez, TX	Debbie McBride, TX
David H. Woolverton, TX	Debbie Rothermel, TX
David Hurd, TX	Deborah Bailey, TX
David Jackson, TX	Deborah Cavazos, TX
David Koppel, TX	Deborah Curtin, TX
David Larsen, TX	Deborah Cushnie, TX
David Leaverton, TX	Deborah Goodykoontz, TX
David Mason, TX	Deborah James, TX
David Menchaca, TX	Deborah Krueger, TX
	Deborah Lee Duke, TX

Individuals (continued)

Deborah Nicol, MI
Deborah Pendleton, TX
Deborah Voves, AK
Deborah Williams, TX
Debra Ayala, TX
Debra Bradford, TX
Debra Brigandi, TX
Debra Bruce, TX
Debra Coleman, TX
Debra Francis, TX
Debra Gakeler, KS
Debra Healey, TX
Debra Johnson, FL
Debra K. West, TX
Debra Mccawley, TX
Debra Nugent, TX
Deena Berg, TX
Deidra Leipelt, TX
Deirdre Ohearn, TX
Delaina Foster, TX
Delia Garcia, TX
Delis Gordon, TX
Dell Hood, TX
Delores Parker, TX
Delysia, TX
Denice Hoggatt, TX
Denie English, TX
Denis Tidrick, TX
Denise Bickford, TX
Denise Castiglia, TX
Denise Cottenoir, TX
Denise Garza, TX
Denise Romano, TX
Denisse Meza, TX
Dennis Lanning, TX
Dennis Robinson, TX
Denny Gunnerson, TX
Dense Ibert, TX
Derek Eckert, TX
Derek Luft, TX
Desiree Peña, TX
Desiree Townsend, TX

Devan Fronk, TX
Devi Hopkins, TX
Deyra Pecina, TX
Diamond Flores, TX
Diana and Maria Muzquiz, TX
Diana Clark, TX
Diana Duesterhoeft, TX
Diana Gamez, TX
Diana H. Cortez Castro, TX
Diana L. Cabrera, TX
Diana L. Castro, TX
Diana Vandal, TX
Diana Wheeler, TX
Dianah Anderson, TX
Diandra Prieto, TX
Diane & Michale Wonio, TX
Diane Adams, TX
Diane Blackburn, TX
Diane Friedman, TX
Diane Hendricks, TX
Diane Jacquemotte, TX
Diane Nosnik, TX
Diane Wanja, TX
Dianne Urey, TX
Diego Fernandez, TX
Dillon Olsen, TX
Dinesha Schmidt, TX
Dirk Rogers, TX
Dolly Southwell, TX
Don & Karen Hamlin, TX
Don and Joyce Faulk, TX
Don Brennecke, TX
Don Landry, TX
Don Shafer, TX
Donald Fite, TX
Donald Robinson, TX
Donald Shrier, TX
Donald Smith, NM
Donald Yancey, TX
Donita Lowrey, TX
Donna Biven, TX
Donna Bryant, TX
Donna Cole, TX

Individuals (continued)

Donna Crittenden, TX
Donna Hall, TX
Donna Mae Travis, TX
Donna Mehaffey, TX
Donna Pauler, TX
Donna Read, TX
Donna Rich, TX
Donna Stewart, TX
Donyce Sprecher, TX
Dora Duarte, TX
Dorinda DeGroff, TX
Dorinda Kelley, OR
Dorinda Scott, TX
Doris Soloman, TX
Doris Valdes, TX
Doris Wangler, TX
Dorothea Vender Stoep, TX
Dorothy Lothe, TX
Dorothy Schleicher, TX
Dorothy Srembo, TX
Dot Montgomery, TX
Doug Bagley, TX
Doug Faircloth, TX
Doug Simmer, TX
Douglas Chalmers, TX
Douglas Junkin, TX
Douglas Nichols, TX
Douglas Pettit, TX
Douglas Rives, TX
Doyle Adkins, TX
Doyle Sebesta, TX
Dr. Adrian F. Van Dellen, TX
Dr. Alex Garcia, TX
Dr. Allen Flosi, TX
Dr. Annika Lindqvist, TX
Dr. Arthur Fellows, TX
Dr. Benjamin Liles, TX
Dr. Camas F. Key, TX
Dr. Cecil Jones, TX
Dr. Charles B. Schmidt, TX
Dr. Cheryl Camp; Robert Sardello, CO
Dr. D. Schoech, TX

Dr. Dalmara Bayne, TX
Dr. David Davidson, TX
Dr. Diane Coleman, TX
Dr. Donna Marhoun, TX
Dr. Edward Codina, TX
Dr. Edward Kern, TX
Dr. Emilie Sebesta, NM
Dr. Fred Ponder, TX
Dr. Gregory Martin, TX
Dr. Heather Brandon, TX
Dr. Jackie Lees, TX
Dr. James Klein, TX
Dr. James Lazell, TX
Dr. James Neely, TX
Dr. Jana McCormick, TX
Dr. Jane Reed, TX
Dr. Janet Newman, TX
Dr. John Keller, TX
Dr. Juba Jorgensen, TX
Dr. Judy Lin, TX
Dr. Karen Carr, TX
Dr. Karen Packard, TX
Dr. Kate Kavanagh, TX
Dr. Kellen McIntyre, TX
Dr. Kenneth Johnson, TX
Dr. Lawrence Cottle, TX
Dr. Lee E Blackwood Est, TX
Dr. Marsha Griffin, TX
Dr. Martin Garcia, TX
Dr. Merci McMahon, TX
Dr. Michael Murphy, TX
Dr. Misty Hook, TX
Dr. Nancy Russell, TX
Dr. Pat Smith, TX
Dr. Patricia Martin, TX
Dr. Paul Fitzpatrick, TX
Dr. Ralph Ward, TX
Dr. Ray C. Telfair II, Ph.D., TX
Dr. Robert Inman, TX
Dr. Robert Morgan, TX
Dr. Sarah Bishop Merrill, TX
Dr. Sharon Rabb, TX
Dr. Steven G. Kellman, TX

Individuals (continued)

Dr. Susan Speers, OH
Dr. T. Randall Mock, M.D., Ph.D., TX
Dr. Terrance Robinson, TX
Dr. Terry Stein, TX
Dr. Theron Francis, TX
Dr. Totta Keller, TX
Dr. Vincent Fonseca, TX
Dr. Walter Graham, TX
Dr. William Westermann, TX
Dr. William Forbes, TX
Dr. Yvonne Hansen, Ed D, TX
Drs. Mary and Tim Jarvis, TX
Duane Patrick, TX
Dulce morales, TX
Duncan Brown, TX
Dwayne Dassing, TX
E Diana Hawks, TX
E Ingraham, TX
E. Neil Smith, TX
E.J. & John Pederson, TX
Earl Green, TX
Earl Mire, TX
Earl R. Oatman, Jr., ID
Ed Breidenbach, TX
Ed Perry, TX
Edali Hernandez-Toca, TX
Eddie Garza, TX
Edgar & Beatriz Monita, TX
Edgar Pace, TX
Edith E Harp, TX
Edna B Hibbits, TX
Edna Goette, TX
Edna Ledesma, TX
Eduardo & Sandra Lopez, TX
Eduardo A. Campirano, TX
Eduardo Luna, TX
Edward Grigassy, TX
Edward Hartwell, TX
Edward Kern, TX
Edward Lackey, TX
Edward T. Dicker, TX
Edwin Dissosway, TX

Edy Toledo, TX
Edye Calderon, TX
Efigenia A. Harmon, TX
Eileen Duppstadt, TX
Eileen Hartman, TX
Elaine Byrne, TX
Elaine Cohen, TX
Elaine Mars, TX
Elaine Sanchez, TX
Eleanor Mason, TX
Eleanor Raybold, TX
Eleenor Casarez, TX
Elena Cole, TX
Eliabeth Marshall, TX
Elida Pardo, TX
Elieen Welch, TX
Elisa Hirt, TX
Elisabeth Sommer, TX
Elise Johnston, TX
Elissa Blanco, TX
Elizabeth Acevedo, TX
Elizabeth Aranda, TX
Elizabeth Atkinson, TX
Elizabeth Berry, TX
Elizabeth Burnette, TX
Elizabeth Burton, TX
Elizabeth Cantu, TX
Elizabeth D. Bergstrom, TX
Elizabeth Duval, TX
Elizabeth G. Craig, TX
Elizabeth Grimsley, TX
Elizabeth Hart, TX
Elizabeth Hutchison, TX
Elizabeth Leatherman, TX
Elizabeth Limardo, TX
Elizabeth Lopez, TX
Elizabeth ODear, TX
Elizabeth Pearl, TX
Elizabeth Rangel, TX
Elizabeth Rowland, TX
Elizabeth Salazar, TX
Elizabeth Sieve, TX
Elke Gonzalez, TX

Individuals (continued)

Ella Buchanan, TX
Ellen Buchanan, TX
Ellen Ireland, TX
Ellen M. Tyma, TX
Ellen Moore, TX
Ellen Smith, TX
Elliott Bailiff, CA
Elma Arredondo, TX
Eloara Cantu, TX
Eloisa M. Villarreal, TX
Elora Martines, TX
Elsa Cruz Dugas, TX
Eltune Mars, TX
Emelia Fulgencio, TX
Emilio Tamez, TX
Emily Bustos, TX
Emily Garza, TX
Emily Garza, TX
Emily Gross, TX
Emily Hernandez, TX
Emily Houlik-Ritchey, TX
Emily J. Alpert, TX
Emily Le, TX
Emily Northrop, TX
Emily Torres, TX
Emma Campbell, TX
Emma Goode-Deblanc, TX
Emma Squires, TX
Emmy Perez, TX
Enriqueta Cisneros, TX
Eric Borja, TX
Eric Brattin, WA
Eric Bray, TX
Eric Casey, TX
Eric Lopez, TX
Eric Meyer, TX
Erica Castro, TX
Erica Vela, TX
Erika Jimenez, GA
Erika Saenz, TX
Erin Balzrette, TX
Erin Coxart, TX

Erin Quigley, TX
Erin Simmons, TX
Ernesto & Gloria M. Hinojosa, TX
Ernesto Almaguer, TX
Ernesto G & Lilian Garcia, TX
Ernesto Garcia, TX
Ernesto Lopez, TX
Ernesto Maycotte, TX
Esai Torres, TX
Esteban Flores, TX
Esteban Gonzales, TX
Esteban Ortiz, TX
Estella Davila Garcia, TX
Eugene J & Katherine Balon, MI
Eugene Molina, TX
Eugene Q. May, TX
Eunice F. Mouton, LA
Eunice Garza, TX
Eunice Mendoza, TX
Eva Coleman, TX
Eva Tinajero, TX
Eva U. Gonzalez, TX
Evan Odell, TX
Evelyn Adams, TX
Evelyn Adams, TX
Evelyn Heyde, TX
Evelyn L. Merz, TX
Evelyn Palder, TX
Evelyn Sardina, TX
Evi Bourne, TX
Evita Cortez, TX
Ezekiel Rodriguez, SD
F.L. Evans, TX
Fabian Vela, TX
Falcon Jesus, TX
Farideh Farrokhi, TX
Fausto U. Garcia, TX
Federico Ortega, TX
Felipa de Jesus Sanchez, TX
Felipe Mejia, TX
Felix Rosillo, TX
Fernanda Martinez, TX
Fernando Diaz, TX

Individuals (continued)

Fernando Strong & Cynthia Strong, TX
Fidelia Guillen, TX
Fidencio Leal, TX
Fleeta Ishmael, TX
Flor Gracia, TX
Flor Gracia, TX
Flora Cavazos, TX
FM, TX
Fran Wessel, TX
Frances Morgan, TX
Frances Patch, TX
Frances Weller, TX
Francisca Saucedo, TX
Francisco Abrego, TX
Francisco De Alba, TX
Francisco Novero, TX
Francisco P. Hernandez & Sofia Cortes, TX
Frank Blake, TX
Frank Christian, TX
Frank Dufour, TX
Frank Hands, TX
Frank Hernandez, Jr., TX
Frank Hobin, TX
Frank Parker, Jr., TX
Fred Bell, TX
Fred Hinkle, TX
Fred Mebane, TX
Frederick Chase, TX
Frederick S. Kaveggia, et ux., TX
Frederick Stadelbauer, TX
Freya Harris, GA
Frieda Mays, TX
Fuentes Richard Steve & Selene Silva, TX
G B Shelburne, TX
G.L. Gibson, TX
Gabe Kirkpatrick, TX
Gabrielle Martin, TX
Gabriel Hernandez, TX
Gabriel Kirkpatrick, TX
Gabriela Cruz, TX
Gail Anthony, TX
Gail McMullen, CA

Gail Porter, TX
Galonsky, Tally & Galonsky Nurith &
Castellano & Tijerina Fam LP, TX
Galtry Lang, TX
Garcia, Schulz Cecilia, TX
Garland Stevenson, TX
Gary and Ellen Snyder, TX
Gary Boerner, TX
Gary Cooper, TX
Gary Drussel, KY
Gary Hild, TX
Gary Putnam, TX
Gary Richards, TX
Gary Shephard, TX
Gary Stephens, TX
Gary Tate, TX
Gary Thomas, TX
Gary W. Coyne et ux., TX
Gayle Goff, TX
Gayle Hood, TX
Gayle Shumate, TX
Gena Sadler, TX
Gene Taylor, TX
General Brant Road, WA
Geneva Chavez, TX
Genevieve Vaughan c/o Frost National
Bank, TX
Genieve Guevara-Grimes, TX
Geoffroy Laumet, TX
Geoge Staff, TX
George and Diane McDiarmid, TX
George Duncan, TX
George Holguin, TX
George Hunt, TX
George Mcdill, TX
George Moore, TX
George Staff, TX
George Worthington, TX
Georgia Couch, TX
Georgia Lawrence, TX
Georgine Benno, TX
Geral Gallegos, TX
Gerald St Germaine, TX

Individuals (continued)

Gerardo Chavez, TX
Gerardo Ruiz, TX
Gerton Westerop, TX
Gertrude Carter, TX
Giana Peranio Paz, NC
Gil Pritchett, TX
Gilbert Gonzales, TX
Gilberto & Cynthia Hinojosa, TX
Gilberto C. Jasso, TX
Gilberto Delgado, TX
Gilberto Hinojosa & Cynthia Hinojosa, TX
Gilberto Lopez, TX
Gina Marcum, TX
Gina Obrien, TX
Gina Quinn, TX
Ginger Himelright, TX
Ginger Hughes, TX
Girard Arcand, TX
Gisela Ayala, TX
Giselle Whitwell, TX
Gladys Patterson, TX
Gloria Crenshaw, TX
Gloria G, TX
Gloria Gannaway, TX
Gloria Garcia, TX
Gloria Griffith, TX
Gloria Martinez, TX
Gloria Mozqueda Padilla & Chavez Elisa
Padilla, TX
Gloria Reyes, TX
Gloria Silva, TX
Gloria Skillman, TX
Glory Arroyos, TX
Gonzales Family LMTD PRTN, TX
Grace Cagle, TX
Grace Holman, TX
Grace P, TX
Gralin Pritchard, TX
Grant S. Wilson, TX
Greg Allbee, TX
Greg Bard, TX
Greg Grubb, TX

Greg Heiy, TX
Greg Hied, TX
Greg Romero, TX
Greg Sells, TX
Greg Sells, TX
Gregory Joel, TX
Griselda V. and Saul Ibarra, TX
Grover Shade, TX
Guadalupe Torres, TX
Guadalupe Yanez, TX
Guillermo de la Garza, TX
Guillermo Rico, TX
Gumecindo Villanueva, TX
Gus Martin, TX
Gus Martin, TX
Gus Sr Chavarria, TX
Gus Z. Fowler, TX
Gustavo Maldonado, TX
Gwen Cruchon, TX
Gwynne Carosella, TX
H Simrin, TX
H. Guh, TX
H. Javier Lara, TX
H. R Calvin, TX
Hal Trufan, NC
Haley Naylor, TX
Hamp Holcomb, TX
Hank Hammett, TX
Harold Albers, TX
Harold Mosher, TX
Harriet S Horton, TX
Harriett Hogle, TX
Harris Ngwo-Anja, TX
Harrison Ward, TX
Harvella Jones, TX
Hayde Correa, TX
Hayley Hartner, VA
Hazel Gilbert, TX
Heather Graeber, TX
Heather Graeber, TX
Heather Hansen, OH
Heather Ramon, TX
Heather Taque, TX

Individuals (continued)

Heather Vardarsuyu, TX
Hector G. & Maria C. Cantu, TX
Hector Martinez, TX
Hector Medellin, TX
Hector Rene Garcia, TX
Heidi Bollock, TX
Heidi Hampton, TX
Helen Agapie, TX
Helen Anders, TX
Helen Elkins, TX
Helen Snook, TX
Helena Gijsbers van Wijk, TX
Helena Hopson, TX
Henry Jackson, TX
Henry Schmoker, TX
Henry Tillman, TX
Herb Zetley, TX
Herbert Caceres, TX
Herbert Held, TX
Herman Rhein, TX
Hilary Swarts, TX
Hilda Gutierrez, TX
Hilda Ledesma, TX
Hillary Earl, TX
Hillery Earl, TX
Hira Mughal, TX
Holly Gloria Klare, TX
Holly Holmes, TX
Holly Holmes, TX
Holly Howarth, TX
Holly Newman, TX
Holly Riker, TX
Holly Sada, TX
Holly Thiel, TX
Homer & Cesar Rodriguez, TX
Homer & Ina Ruth Tamez, TX
Horace Smith, TX
Howard Cohen, CA
Hsiao-Huei Guh, TX
Hugo Mota, TX
Hunter Lohse, TX
Hunter Wagner, TX

Ida Marie Ortega, TX
Ida Perez, TX
Idell Fowler, TX
Ignacia V. Hinojosa, TX
Ignacio & Dora Galvan Perez, TX
Ilene Dillon-Fink, TX
Ina Ruth Tamez, TX
Ingrid Hansen, TX
Irenie Salazar-Parada, TX
Iris Castillo, TX
Irma Vera, TX
Isabel Garcia Family Limited Partnership,
TX
Isabel Garcia Vezzetti, TX
Isabel Garza, TX
Isidro Arreola, TX
Isidro Rodriguez, TX
Isys Chamberlain, TX
Itzitzzy Godinez, TX
Ivan Godinez, TX
Ivy Garcia, TX
Ivy Hinson, TX
J E Yee, TX
J Fred Lindner, TX
J Wells, TX
J.A. Garcia, Jr., TX
J.M., TX
J.R. Gimblet, TX
Ja Campbell, TX
Jace Covington, TX
Jack Banun, TX
Jack Bennett, TX
Jack Brown, TX
Jack Ludwig, TX
Jack Mac Phall, TX
Jackie Demarais, TX
Jackie Demarais, TX
Jackie Trevino, TX
Jacky Custerer, TX
Jacob Hendrickson, TX
Jacob Shields, TX
Jacque and John Stoddart, TX
Jacque G, TX

Individuals (continued)

Jacqueline Bollinger, TX

Jacqueline Herbert, TX

Jacqueline Rorno, TX

Jacquelyn Camacho, TX

Jacquelyn Dingley, TX

Jacqui Hamlett, TX

Jacquelyne Romero, TX

Jade Snell, TX

Jaen Lawrence, TX

Jaescemills, TX

Jaime E Caico, TX

Jaime Gonzalez, TX

Jaime Ortiz, TX

Jamaila Saenz, TX

James and Beth Lewis, TX

James Andrew, TX

James Benning, TX

James Blount, NC

James Bruno Taubert, TX

James Bruno Taubert, TX

James C. Winters, TX

James Clifford Winters c/o Faustino Ochoa,
TX

James Corbin, TX

James D. Brian, TX

James DeLay, TX

James Flanagan, TX

James Gillim, TX

James Hannon, TX

James Hickey, TX

James Holcomb, TX

James Hollis, TX

James Klein, TX

James Krohmer, KY

James L McCall, TX

James Lockaby, TX

James Lowe, TX

James M. Kitchens, TX

James Matteson, TX

James Milo, TX

James Mulcare, WA

James Oflaherty, TX

James Padier, TX

James Reyes, TX

James Rice, TX

James Smith, TX

James Talbot, TX

James Tillotson, TX

James Trammell, TX

James Volketts, TX

James W. Huie, Trustee, Vivian N Huie
Estate Trust, TX

James Wiggins, TX

Jamie Cantu, MEXICO

Jamie Darr-Hall, TX

Jamie Tijerina, TX

Jamie Zak, TX

Jan Adrian, TX

Jan Casner, TX

Jan E Vaughan, TX

Jan Fouche, TX

Jan Gonzalez, TX

Jan Iverson, TX

Jana Harter, TX

Jane Avila, TX

Jane Callahan, TX

Jane Chamberlain, TX

Jane Fuhrman, TX

Jane Jatinen, TX

Jane Leatherman Van Praag, TX

Janell Jenkins, TX

Janene Lindholm, TX

Janet & John Ritter, TX

Janet Burndage, TX

Janet Calme, KY

Janet Delaney, TX

Janet Dougherty, TX

Janet L. Therrian, MI

Janet Landwert, TX

Janet Shuff, TX

Janet Todd, TX

Janette Leggon, TX

Janette Ramos, TX

Janie Martinez, TX

Janis King, NV

Individuals (continued)

Janis Lanagan, TX

Janis Martinez, TX

Jany Maneiro, TX

Janyce McLean, TX

Jaqueline Bollinger, TX

Jared Har, TX

Jason J Walker, TX

Jason Lee, TX

Jason Reinhardt, TX

Jason Salinas, TX

Javad Maher, TX

Javier Gonzalez, TX

Javier Ibarra, TX

Javier Parra, TX

Javier R Garcia, TX

Javier Rene Correa, TX

Javier Rivera, TX

Jay Gilchrist, TX

Jay Kane, TX

Jay Kolenovsky, TX

Jayne Carter, TX

Jazmin Antunez, TX

Jazmin Gonzalez, TX

Jean Camemn, TX

Jean Genevie, TX

Jean Hopkins, TX

Jean Lamberty, TX

Jean Mendoza, IL

Jean Pettit, TX

Jean Rothfusz, TX

Jean Wigle, TX

Jeanette Langford, TX

Jeanne Evans, TX

Jeanne Jordan, TX

Jeanne Kyser, TX

Jeanne Lloyd, TX

Jeanne Rogers, FL

Jeannie Corbitt, TX

Jeannie Smith, TX

Jeannine Gilliand, TX

Jed Mccuiston, TX

Jeff Alhecht, TX

Jeff C. Riviera, TX

Jeff Crunk, TX

Jeff Helton, TX

Jeff Meyerson, TX

Jeff Paul, TX

Jeff Shook, TX

Jeff Tave, TX

Jeffrey D. Oetting, TX

Jeffrey Hartford, TX

Jenee Whitener, TX

Jennielee Dietz, TX

Jennifer Aldridge, TX

Jennifer Anderson, TX

Jennifer Bendio, TX

Jennifer Brezall, TX

Jennifer Favela, TX

Jennifer Golden, TX

Jennifer Herrera, TX

Jennifer Holburn, TX

Jennifer Jones, TX

Jennifer Mendez, TX

Jennifer Mundine, TX

Jennifer Oppenheim, TX

Jennifer Oppenheimer, TX

Jennifer Prevost, TX

Jennifer Ruedas, TX

Jennifer Selmer C/O Algert Tabitha, CA

Jennifer Tischer, TX

Jennifer Yacio, TX

Jeralynn Cos, TX

Jeremy Bennett, TX

Jeri Porter, TX

Jerry Bailey, TX

Jerry Brown, TX

Jerry Christiansen, TX

Jerry Lobdill, TX

Jerry Mylius, TX

Jerry Perez, TX

Jesenia Zurita, TX

Jess Saucedo, TX

Jesse Manciaz, TX

Jesse Mathis, TX

Jesse Pizana, Jr., TX

Individuals (continued)

Jesse Saenz, TX	Joanna Delgado, TX
Jessica Aguilar, TX	Joanne Crummond, TX
Jessica DeZelle, TX	Joanne Day, TX
Jessica Garcia, TX	Joanne Groshardt, TX
Jessica Martinez, TX	Joanne Johnson, TX
Jessica Suarez, TX	Joaquin Eflinger, TX
Jessica Taylor, TX	JoDee Nelson, TX
Jessica Turner, TX	Jody Miller, TX
Jessie Schell, TX	Joe A. Zayos, TX
Jessika Fazquez, TX	Joe and Karen Lansdale, TX
Jesus Castillo, TX	Joe H. Rodriguez, TX
Jesus Flores, TX	Joe Mihm, TX
Jesus Gloria, Jr. and Amanela Minez, TX	Joe Moreno, TX
Jesus Hernandez, TX	Joe Muscara, TX
Jesus Olivares, TX	Joe Rogers, TX
Jesus Pantel, TX	Joe Tompkins, TX
JF Margos, TX	Joel Melton, TX
Jill Balley, TX	Joel Perkins, TX
Jill Butts, TX	Joel Perkins, TX
Jill Mooney, TX	Joel Perkins, TX
Jill Velez, TX	Johanna and Jose Raul Jaramillo, TX
Jill Wallace, TX	John Atlas, TX
Jillian Brooks, TX	John Barnes, TX
Jim Anderson, TX	John Blackwell, TX
Jim Crosby, TX	John Boyd, TX
Jim Graham, TX	John Browning, TX
Jim Hill, TX	John Browning, TX
Jim McElroy, TX	John Carpenter, TX
Jim Mckee, TX	John Clark, TX
Jim McQueen, TX	John Clary, TX
Jim Tucker, TX	John Cunningham, TX
JK Williams, TX	John Edwards, TX
Jo York, TX	John Faulk, TX
Joan & Shen Goetz, TX	John Guest, TX
Joan Allison, TX	John Haller, TX
Joan Bonnington, TX	John Hanson, TX
Joan Ciarocco, TX	John Hawthorne, TX
Joan Johnson, TX	John Helms, TX
Joan Mayfield, TX	John Hirschi, TX
Joan Quenan, TX	John Joseph, TX
Joan Walker, NC	John Langston, TX
Joan Walker, CA	John Lewis, TX
	John Madrid, TX

Individuals (continued)

John Moszyk, MO
John Pasqua, CA
John Paul Bujnoch, TX
John Petrarca, TX
John Propespier, TX
John R Huff Jr, TX
John Rath, TX
John Rooney, TX
John Taylor de La Garza, TX
John Thaxter, TX
John Whitright, TX
John Willis, TX
John Wilson, TX
John Yarber, TX
John Young, TX
John Zeigler, TX
John-Michael Torres, TX
Johnny Whitright, TX
Joliet Vallejo, TX
Jon Downs, TX
Jon Gross, TX
Jon Mullin, TX
Jon Pitt, TX
Jonathan Head, TX
Jonathan Todd Fernandes, CA
Joni S. Montover, TX
Jordan Arendas, TX
Jorge & Idelma Violeta Cantu, TX
Jorge Gamez, TX
Jorge Garcia, TX
Jorge Gutierrez, TX
Jorge Roses, TX
Jose & Jeronimo Rodriguez, TX
Jose & Maria Elma Torres, TX
Jose & Olga Padilla, TX
Jose A. Quezada, TX
Jose Alfonso Joya, TX
Jose Antonio Valle Hernandez, TX
Jose Art Chapa, TX
Jose Castreusn, TX
Jose De Souza, TX
Jose Gamboa, TX

Jose Garcia, TX
Jose Hernandez, TX
Jose J Aza, TX
Jose Jaramillo et ux., TX
Jose Luis Garcia, TX
Jose Luis Muñoz, TX
Jose M. Barreda, TX
Jose Peña, TX
Jose R. Agustin et ux., NJ
Jose R. Roche, TX
Jose Reyna Sanchez, TX
Jose Rodríguez, TX
Jose Rosales, TX
Joseph Bogoned, TX
Joseph Bogorad, TX
Joseph Durrance, TX
Joseph Moon, Jr., TX
Joseph Patton, TX
Joseph Paukman, NY
Joseph Petty, TX
Joseph Reynolds, TX
Joseph Shurgot, TX
Joseph Vanblargan, TX
Josette A. Cruz, TX
Josette Cruz, TX
Josh Ballenso, TX
Josh Blaine, TX
Joshua Herring, TX
Joshua Seff, TX
Joshua Self, TX
Joshua Torres, TX
Joshua Wallis, TX
Josie Avalos, TX
Josue Davila, TX
Joy Clark, TX
Joy McMillin, TX
Joy Morgan, TX
Joy Perry, TX
Joyce Alvarado, TX
Joyce Dixon, TX
Joyce Hamilton, TX
Joyce Morris, TX
Joyce Mynier Turcotte, TX

Individuals (continued)

Joyce Sema, TX
Juan B. Mancias, TX
Juan Carlos Garcia, TX
Juan Castillo, TX
Juan De Dios Garcia, TX
Juan J. & Juanita B. Yanez, TX
Juan Jaime Flores, TX
Juan Jr .& Irene Cantu, TX
Juan Morlock, TX
Juan Quinonez, TX
Juan Rodriguez, TX
Juan Santillan, TX
Juan Tejeda, TX
Juana Alicia Ruiz, TX
Juana M Garcia De Herrera, TX
Juanita Arminta Guajardo, TX
Juanita Kohlhauff, TX
Juanita Stringfield, TX
Juanito Avalos, TX
Judi Bass, TX
Judi Hayes, TX
Judith Emerson, TX
Judith Freer, TX
Judith Holmes, TX
Judith Lauter Phd, TX
Judith Nickerson, TX
Judith Rogers, TX
Judith Stueve, TX
Judith Wilson, TX
Judy Amstutz, TX
Judy Bryce, TX
Judy Childers, WI
Judy Greenwood, TX
Judy Katherine Jones, TX
Judy King, TX
Judy Mayo, TX
Judy McEnany, TX
Judy Perkins, TX
Judy R. Funk, TX
Judy Sneed, TX
Judy Whetzel, TX
Judy Williams, TX

Juli Kring, TX
Juli Kring, TX
Julia Landress, TX
Julia Strawn, TX
Julia Verhoy, TX
Julia Woodward-Parker, TX
Juliana Mujica, TX
Julianne Apodaca, NM
Julie Blanford, TX
Julie Buchanan, TX
Julie Burciaga, TX
Julie Bush, TX
Julie Edelstein-Best, TX
Julie Jones, TX
Julie Norris, TX
Julie Sears, TX
Julie Soleil, TX
Julie Torrey, TX
Juliet Reardon, TX
Julio Lopez, TX
Julio Sanchez, Jr., TX
June Adler, TX
June Mills, CA
Justin Andrews, TX
Justin Bautista, TX
Justin Bosler, TX
Justin Neufeld, TX
K Fisher, TX
K Taylor, TX
K Ward, TX
K. Scott, TX
Kacy Mora, TX
Kaila Montgomery, TX
Kaileen Reynolds, TX
Kaitlyn Cravens, TX
Kalli Doubleday, TX
Kambra Allen, TX
Kara Graul, TX
Kara Page, TX
Karal Batton, TX
Karen Anderson, TX
Karen Boward, TX
Karen Browning, TX

Individuals (continued)

Karen Cowen, TX
Karen D. Fossom, TX
Karen Dampeer, TX
Karen Grosse-Ramirez, TX
Karen Hill, TX
Karen Holleschau, TX
Karen Jolly, TX
Karen Kawszan, TX
Karen Lang-Ferrell, TX
Karen Lansdale, TX
Karen Lehr, TX
Karen Mayer, CA
Karen Naumann, TX
Karen Norton, TX
Karen Norton, TX
Karen Pfeiffer, TX
Karen Richard, TX
Karen Ricks, TX
Karen Sandall, TX
Karen Scott, TX
Karen Sprague, TX
Karen Sterling, TX
Karen Sullivan, TX
Karil Scalise, TX
Karin Marsh, TX
Karina Espino, TX
Karina Gonzalez, TX
Karina Guerrero, TX
Karl Brooks, TX
Karl Johnson, TX
Karl Kaufmann, TX
Karole Moyed, TX
Karon Harrison, TX
Karsten T and W Barclay Idsal, TX
Karsten T Idsal, TX
Karyn Olschesky, TX
Kat Carlson, TX
Kat Gualy, TX
Kat Perez Feuerbacher, TX
Kate Bremer, TX
Kate Macneil, TX
Kate Wasserman, TX

Katharine Sommerfield, TX
Katherine Alejo, TX
Katherine Armstrong Love, TX
Katherine Bond, TX
Katherine Cervone, TX
Katherine Feuerbacher, TX
Katherine Hanley, TX
Katherine Okulewicz, TX
Katherine Sayles, TX
Katherine White, TX
Kathleen Alexander, TX
Kathleen Bryson, TX
Kathleen Campbell, TX
Kathleen Hackett, TX
Kathleen Jaudzemis, TX
Kathleen Landfield, TX
Kathleen Mireault, MA
Kathleen Robertson, TX
Kathleen Younghans, TX
Kathryn Blaire Craddock, TX
Kathryn Burns, TX
Kathryn Cain, TX
Kathryn Davidson, TX
Kathryn Johnson, TX
Kathryn Martinez Tijerina, TX
Kathryn Runnells, TX
Kathryn Samec, TX
Kathy Bassert-Webb, TX
Kathy Farr, TX
Kathy Goodwin, TX
Kathy Mcpherson, TX
Kathy Newman, TX
Kathy Okulewicz, TX
Kathy Pinckney, TX
Kathy Rinehart, TX
Kathy Spera, TX
Kathy Watt, TX
Katie Drackert, TX
Katie Irani, TX
Katie Neinast, TX
Katira Tejada, TX
Katira Telecast, TX
Katlin Collins, TX

Individuals (continued)

Katrin McManis, TX	Kent And Karol Middleton, TX
Katrina Cameron, TX	Kent Rylander, TX
Katy Youker, TX	Kent Smither, TX
Kay Baughman, TX	Kenton Lindley, TX
Kay Dahle, TX	Keri Branch, TX
Kay Faile, TX	Kerry Lemon, TX
Kay Foster, TX	Kethsaly Salinas, TX
Kay Long, TX	Kevin Emmons, TX
Kay Mcbrayer, TX	Kevin Hammeke, TX
Kay Mcbrayer, TX	Kevin Hartley, TX
Kay Rolfes, TX	Kevin Horton, TX
Kaye Mccall, TX	Kevin Misak, TX
Kaylah Hilliard, TX	Kevin Rivas, TX
Kayley Stanfield, TX	Kevin Rosa, TX
Keely Gililland, TX	Kevin Smith, TX
Keena Miller, TX	Kevin Thompson, TX
Keith Euler, TX	Khy Chapman, TX
Keith Godwin, TX	Kim Allen, TX
Keith Hailey, TX	Kim Bacon, TX
Keith Musgrove, TX	Kim Bigley, TX
Keith Teeter, TX	Kim Fry, TX
Kelli Jay, TX	Kim Garcia, TX
Kelli Reid, TX	Kim Limberg, TX
Kelly Besecke, TX	Kim Malthesen, TX
Kelly Epstein, TX	Kim Monroe, TX
Kelly Epstein, TX	Kim Sanders George, TX
Kelly Hobbs, TX	Kim Sturling, TX
Kelsey Lira, TX	Kimber Kaushik, TX
Ken Berry, TX	Kimberly Allen, TX
Ken Box, TX	Kimberly and Robert Walsdorf, TX
Ken Dancak, TX	Kimberly Hawke, TX
Ken Dixon, TX	Kimberly Wagner, TX
Ken Hughes, TX	Kimberly Wiley, NY
Ken Larsen, TX	Kimberly Willis, TX
Ken Mueller, TX	Kin and Linda Rosevelt, TX
Ken Odell, TX	Kinney Evitt, TX
Ken O'dell, TX	Kirk & Xochitl Jackson, TX
Ken Orgera, TX	Klementyna Bryte, TX
Kenneth Elder, TX	Kodie Nagy-Montgomery, TX
Kenneth Hillard, TX	KPSB, LLC, TX
Kenneth Reynolds, TX	Kristal Fuller, TX
Kenneth Walter, TX	Kristeena Banda, TX
	Kristen Brown, TX

Individuals (continued)

Kristen Pierce, TX
Kristen Schroder, TX
Kristi Collins, TX
Kristi Michener, TX
Kristin Anthony, TX
Kristin Wellman, TX
Kristina Lamons, TX
Kristina Williams, TX
Krystal Ybarra, TX
Ksusha Pachurova, TX
Kurt Steinman, TX
Kwin Armitze, TX
Kylara Hunter, TX
Kyle Hawkins, TX
Kyle Jeffries, TX
L M, TX
L. Fielder, TX
Laila Sabet, TX
Lalie Burns, TX
Lamar Smith Life Estate Trustee, TX
Lance Kirkpatrick, TX
Lang Violet D, TX
Lani & Dale Crawford, TX
Lannie Tucker, TX
Lany Burgoon, TX
Larisa Manescu, TX
Larise Boughner, TX
Larry & Norma Wheelock, TX
Larry D Spencer, TX
Larry DeFrance, TX
Larry Hollmann, TX
Larry Wetmore, TX
Laura Aranda, TX
Laura Baguio, TX
Laura Cartwright, TX
Laura Codina, TX
Laura Gamez, TX
Laura Hendrix, TX
Laura Jobe, TX
Laura Mordecai, TX
Laura Munroe, TX
Laura S. Sanchez, TX

Laura Sander, TX
Laura Snider, TX
Laura St. Clair, TX
Laura Stclair, TX
Laura Villarreal, TX
Laurel Piersol, TX
Laurel Power, TX
Laurel Steinberg, TX
Lauren Bohart, TX
Lauren Danford, TX
Lauren Fenenbock, TX
Lauren Fleming, TX
Lauren Heiy, TX
Lauren Latigo, TX
Lauren Mangini, TX
Laurey Mouledous, TX
Laurie Carpenter, TX
Laurie Howell, TX
Laurie Marshall, TX
Laurie Piper, TX
Laurie Ward, TX
Laurie Winnette, TX
Laverne C. & Barbara May, TX
LaVina Ju Meyer, TX
Lavinia Morales, TX
Lawrence Galvan, TX
Lawrence Nitishin, TX
Lawrence Smith, TX
Laylee Farajollahi, TX
Leads Dietz, TX
Leah Andemon, WA
Leah Huddleston, TX
Leah Mackay, TX
Leal Rodolfo, TX
LeAnne Clanton, TX
Lee And Sue Scarbomugh, TX
Lee Hutchings, TX
Lee Hutchings, TX
Lee Loe, TX
Leeann Chastain, TX
LeeAnne Clanton, TX
Leigh Ann Wallace, TX
Leilani Castillo, TX

Individuals (continued)

Lelia Vaughan, TX
Lenore Reeves, IL
Leona Coen, TX
Leona Diener, TX
Leonel Becerra, TX
Leonor Pacheco, TX
Leonor Smith Zacarias, TX
Leopoldo Soto Jr, TX
Leroyce Mead, TX
Leroyce Mead, TX
Lesa Tyson, TX
Leslie Botts, TX
Leslie Butterworth, TX
Leslie Currens, TX
Leslie Hines, TX
Leslie Ockerman, TX
Leslie Pagan, TX
Leslie Smith, TX
Leslie Smith, TX
Leslie Wilder, TX
Lessie Spindle, TX
Lesta Frank, TX
Leta Wall, TX
Leticia Hernandez, TX
Leticia Seolt, TX
Leticia Serna, TX
Lettie Perez, TX
Libby Baltrusch, TX
Lida Jenney, TX
Lilia Pena, TX
Lilli Johnson, TX
Lillian Quintanilla, TX
Lillie Tijerina, TX
Linda Allen, TX
Linda Bae, TX
Linda Bailey, TX
Linda Berger, TX
Linda Bethke, TX
Linda Bingaman, TX
Linda Braune, TX
Linda C Kennedy, TX
Linda Cain, TX

Linda Carr, TX
Linda Charlton, TX
Linda Chenault, TX
Linda Christian, TX
Linda Cox, TX
Linda Crew, TX
Linda Day, TX
Linda Diaz, TX
Linda Fielder, TX
Linda Garcia, TX
Linda Hadovsky, TX
Linda Hahus, TX
Linda Hanratty, TX
Linda Jones, TX
Linda Jones, TX
Linda Kobler, TX
Linda Konicek, TX
Linda Moore, TX
Linda Reynolds, TX
Linda Rudolf, TX
Linda Schubert, TX
Linda Steward, TX
Lindsey Clepper, TX
Lindsey Densing, TX
Lindsey McMahan, TX
Lindsey Simmer, TX
Ling Zhu, TX
Lisa Adam, TX
Lisa Andrus, TX
Lisa Barrett, TX
Lisa Canorro, TX
Lisa Fisher, TX
Lisa Goetz, TX
Lisa Hughes, TX
Lisa Hughes, TX
Lisa Johnson, TX
Lisa Lucko-Powell, TX
Lisa Martinez, TX
Lisa Mazzola, FL
Lisa Millsap, TX
Lisa Neste, NC
Lisa Peters, TX
Lisa Roof, TX

Individuals (continued)

Lisa Silguero, TX
Lisa Slihuero, TX
Lisa Stevenson, TX
Lisa Stone, TX
Lisa Tsokos, TX
Liz Field, MA
Liz Lafour, TX
Liz Sieve, TX
Lizeth Marquez, TX
Lizeth Romero, TX
Lois E. Curry, FL
Lois Looney Kochie, TX
Lois Savage, FL
Lois Van-Englehoven, TX
Loisann Sciarriflo, TX
Longoria Daniel, TX
Lonnie Reyes, TX
Lorelei O'Malley, TX
Lorelei Stierlen, TX
Lorenz Steininger, VA
Loretta Allen, TX
Lori Janick, TX
Lori Peniche, TX
Lori Williams, TX
Lorna Hears, TX
Lorraine DeHaas, TX
Lorraine Moore, TX
Lorraine P. & Dennis L. Woolam, TX
Lorraine Staup, TX
Lou Woo, TX
Louanne Ladson, OH
Louanne Lasdon, OH
Louis Cumings, TX
Louis Ingram, TX
Louise Larsen, TX
Lourdes Martinez, TX
Loyd Cortez, TX
Luanne Vela, TX
Luce Crim, TX
Lucia Banuelos & Luis P. Banuelos & Alma
G. Reynolds & Esperanza Carpenter,
TX

Lucinda Wierenga, TX
Lucinda Windsor, TX
Lucy Braun, TX
Lucy Foster, TX
Luis A. Guitran, TX
Luis Gonzales, TX
Luis Perez, TX
Luis Soria, TX
Luis T Gonzalez & Evelia I Pinales, TX
Luis Zepeda, TX
Lupe Ramos, TX
Lupita Betamal, TX
Lydia E. Caballero, TX
Lydia Grotti, TX
Lydia Guerra, TX
Lydia Guerre, TX
Lyn Roberts, TX
Lynda Frazier, TX
Lynda Walker, TX
Lynn Bassford, TX
Lynn Brown, TX
Lynn Buehler, TX
Lynn Rich, TX
Lynn Vincentnathan, TX
Lynne and Jim Skripka, MI
Lynsey Holland, TX
M Delgado, TX
M Hoard, TX
M. Huepers, TX
M. Wilkinson, TX
M. Willmann, TX
M.J. Tamez, TX
Mabel Casagrand, TX
Mabel Hockaday, TX
Madalynn Carey, TX
Maile Worrell, TX
Mallory Draper, TX
Malva McIntosh, TX
Mamie Bondy, TX
Mansol Alejos, TX
Manuel Sanchez, TX
Marce Walsh, TX
Marcia Curry, TX

Individuals (continued)

Marcie M. Russell, TX
Marco Amzaldua, TX
Marco Antonio Mota, TX
Marco Lopez, TX
Marcos Estrada, TX
Marcos Kauffman, TX
Marcos Munoz, TX
Marcos Narvaez, TX
Marcus Henning, TX
Mare Lionetti, TX
Margaret F. Trahan, TX
Margaret Fung, TX
Margaret Little, TX
Margaret Parkhill, TX
Margaret Schulenberg, TX
Margaret Shulenberg, TX
Margaret Tatum, TX
Margaret Walden, TX
Margaret Zoch, TX
Margarita Espinoza, TX
Margery Race, TX
Margie Recio, TX
Margot Moczygemba, TX
Marguerite Foster, TX
Maria Anna Esparza, TX
Maria Antonia Gentry, TX
Maria Corina Garcia, GA
Maria Cruz & Alvaro Morin Gonzalez, TX
Maria Del Carmen Perez, TX
Maria Ester H. Garza & Irma H Infante &
Maria J H Benavides & Belinda H Rios, TX
Maria G. Alvarez, TX
Maria Gostisha, TX
Maria L. Garza, TX
Maria L. Torres, TX
Maria Lee Semelsberger, GA
Maria Ortegon, TX
Maria S Tovar, TX
Maria Sophia Vassilakidis, TX
Maria Tobin, TX
Maria Williams, TX
Maria Williamson, TX

Marian Henderson, TX
Mariana Pruneda, TX
Marianne & Stefan Vogt, TX
Marianne Herrmann, TX
Marianne Poythress, TX
Marie Bernache, TX
Marie L. Bowen, TX
Marie Livingston, MN
Marie Norell, TX
Marie Sophia Vassilakidis, TX
Marie Travis, TX
Marie Van Dijk, TX
Marilyn Abbott, TX
Marilyn Endres, TX
Marilyn Flores, TX
Marilyn Lara, TX
Marilyn Lorenz, TX
Marilyn Otken, TX
Marilyn Parker, TX
Marilyn Patton, TX
Marilyn Wayte, TX
Marin Penkwitz, TX
Marina Garcia, TX
Marinda Van Dalen, TX
Mario Colt, TX
Mario Cuevas, TX
Mario Scrida, TX
Marion Dick, TX
Marisela Maua, TX
Marisol Cervantes, TX
Marisol Cristine Cervantes, TX
Marisol Gutierrez, TX
Marissa Jennings, TX
Maritza Rodriguez, TX
Mariu Suarez, TX
Marj Sears, TX
Marjorie E. C. Rhodes c/o Gaye C. Butcher,
TX
Marjorie Kessler, TX
Mark & Nghi Pham Kroll, TX
Mark Blandford, TX
Mark Blandford, TX
Mark Craig, TX

Individuals (continued)

Mark Goodman, TX	Mary D Cartwright, TX
Mark J Kaswan, TX	Mary F. Gonzalez, TX
Mark Klugiewicz, TX	Mary Franklin, TX
Mark Mckim, TX	Mary Gianakos, TX
Mark Mckim, TX	Mary Grimes, TX
Mark Pride, TX	Mary H. Rhodes, TX
Mark Roberts, TX	Mary Heifner, TX
Mark Russell, TX	Mary Helen Flores, TX
Mark Spenser, TX	Mary Holguin, TX
Mark Triggs, TX	Mary Jane Zamarripa, TX
Mark Waits, TX	Mary Jo DeLavan, TX
Mark Witte, TX	Mary Jo Zappone, TX
Marla Brandt, TX	Mary Jozwiak, TX
Marla Hanks, TX	Mary Jozwiak, TX
Marla Reyna-Gomez, TX	Mary K Bruner, TX
Marley Whistler, TX	Mary K Bruner, TX
Marlon Mejia, TX	Mary Kurtnick, TX
Marta Diaz, TX	Mary L Gonzalez, TX
Marta Hubbard, TX	Mary Louise Long, TX
Martha A. Martinez, TX	Mary Martin, TX
Martha Burford, TX	Mary McDonald, TX
Martha Cervenka, TX	Mary McGowen, TX
Martha Doty, TX	Mary Merzbacher, TX
Martha Eberle, TX	Mary Miller, TX
Martha Gorak, TX	Mary Monroe, TX
Martha Leos, TX	Mary Morgan, TX
Martha Lyons, NV	Mary Morris, TX
Martha N. Martinez, TX	Mary Parke, TX
Martha Zinn, TX	Mary Payton, TX
Martin Enrique Garcia, II, TX	Mary Schmidt, TX
Martin Olguin, TX	Mary Schultz, TX
Martin Penkwitz, TX	Mary Sparks, TX
Martin Pesaresi, TX	Mary Sue Rose, TX
Martin Wimmer, TX	Mary Tegtmeier, TX
Marty Anderson, TX	Mary Tupper, TX
Marty Jones, TX	Mary Volz, TX
Mary Adam, TX	Mary Wantland, TX
Mary Alvarez, TX	Mary Weaver, TX
Mary and Sammy Blount, TX	Mary Welch, TX
Mary Buinger, TX	Mary Wilcox, TX
Mary C. Grimaldo, TX	Mary Williamson, TX
Mary Cato, TX	Mary Young, TX
	Maryam Khaledi, TX

Individuals (continued)

Maryrose Cimino, TX	Melanie Demartinis, TX
Matt Brewer, TX	Melanie Gibson, TX
Matt Cearley, TX	Melanie Sinclair, TX
Matt Colburn, TX	Melinda Fritsch, TX
Matt Gauna, TX	Melinda Schmidt, TX
Matt Helton, TX	Melissa Alvarado, TX
Matt Lykken, TX	Melissa Cardenas, TX
Matt Morgan, TX	Melissa Morgan, TX
Matt Rivas, TX	Melissa Noriega, TX
Matt Tolentino, TX	Melissa Rodriguez, TX
Matthew Andrade, TX	Melissa Russo, TX
Matthew Atterberry, TX	Melissa Russo, TX
Matthew Holder, TX	Melodie Palmer, TX
Matthew Johnson, TX	Meredith Green, TX
Matthew Kresha, TX	Meredith Mcguire, TX
Matthew Mason, TX	Merideth Green, TX
Matthew Sustaita, TX	Merideth Henkel-Green, TX
Matthew Taylor, TX	Merit Dubois, TX
Maumen Mayfield, TX	Michael & Jeanne Galvin, TX
Maureen Farr, TX	Michael & John Scaief, TX
Maureen Saval, TX	Michael & John Scaif, TX
Maureen Theroux, TX	Michael Amaka, TX
Maureen Theroux, TX	Michael and Linda Montgomery, TX
Mauri Williams, TX	Michael Baguio, TX
Mauro C. Alvarez, TX	Michael Barton, TX
Mavis Belisle, TX	Michael Brown, TX
Mavis Knight, TX	Michael Buescher, TX
Max Anderson, TX	Michael Carr, TX
Max Anderson, TX	Michael Cateona, TX
Max Dreyer, Jr. C/O Pat Hallmark, TX	Michael Chavez, TX
Maximillian Gutierrez, TX	Michael Collard, TX
May A Martinez, TX	Michael Daniels, TX
Meagan Cohen, TX	Michael Dubrick, TX
Megan Chilcutt, TX	Michael Earney, TX
Megan O'Connell, TX	Michael Friedman, NY
Mel Jordan, TX	Michael Garcia, TX
Mel Templet, TX	Michael Harrison, TX
Mel Torres, TX	Michael Hart, TX
Melanee Siebert, TX	Michael Herzog, TX
Melanic Gibson, TX	Michael Homer, TX
Melanie Anne Persson, TX	Michael Honel, TX
Melanie Baldi, TX	Michael Jones, TX
	Michael Jones, TX

Individuals (continued)

Michael Jordan, TX
Michael Kavanaugh, TX
Michael Macias, TX
Michael Mager, TX
Michael Marshall, TX
Michael McMurtrey, TX
Michael Monahan, TX
Michael Murphy, TX
Michael Neal, FL
Michael Orloff, TX
Michael Peterson, TX
Michael R. Watt, TX
Michael Revord, TX
Michael Russell, TX
Michael Smith, TX
Michael Spradlin, TX
Michael Sularz, TX
Michael Walsh, TX
Michaela Dunaway, TX
Michelle Hospod, TX
Michelle J. Zamarron, TX
Michelle Jiminez, TX
Michelle Marchbank, OK
Michelle Rutan, TX
Michelle Tellez, TX
Mickey Meyers, TX
Mickey Reves, TX
Miguel Hernandez, TX
Miguel Meza, TX
Miguel Sorren, TX
Mike & Kathy Landry, TX
Mike Alejandro Garcia, TX
Mike Anderson, NJ
Mike Carpenter, TX
Mike Johnson, TX
Mile Capetran, TX
Millard Scott, TX
Miller Jerry, TX
Milton Watson, TX
Miquel A. Garcia, TX
Miriam Espino, TX
Misti O'Quinn, TX

Mitchell Harl Thomas, TX
Mitcheol Mead, TX
Mitlon Hickman, TX
Mitzi Jones, TX
Mitzi Perkins, TX
Moises & Ana Bertha Aguilar, TX
Mollie Warren, TX
Molly Neeley, TX
Monica Arsate, TX
Monica Drake, TX
Monica Kindervater and Earl Shadle, TX
Monica Kuretzka, TX
Monica Lee Luna, TX
Monica M. Mark, TX
Monica Ochoa, MN
Monika Brown, TX
Monique McIntyre, TX
Montez McCrary-Holland, TX
Morris Sandal, TX
Morris Sander, TX
Mrs. Ramon Davila, Sr., TX
Muenchow Marcus, TX
Muhammad Jawad, TX
Muriel J. Collier, C/O Susan Collier Miller,
TX
Myra Newfeld, TX
Myra Paredes, TX
Myrthala Gonzalez, TX
N. Woodard, TX
Nadia Prado, TX
Nadia Senter, TX
Nadia Traietti, TX
Nadine Prescott, TX
Nagender Kaushik, TX
Nancy Baise, TX
Nancy Cook, TX
Nancy Ewart, TX
Nancy Fortner, TX
Nancy Fullerton, TX
Nancy Jones, TX
Nancy Lauritsen, TX
Nancy Lillie, IN
Nancy Mcgrath, TX

Individuals (continued)

Nancy Mcvean, TX	Nicole Creek, TX
Nancy O'Neal, TX	Nicole Ekstrom, TX
Nancy Palazzolo, TX	Nicole Groote, TX
Nancy Rosenberg, TX	Nicole Portillo, TX
Nancy Ross, TX	Nicolette Immel, TX
Nancy Wilson, TX	Nicosia Patricia A, NJ
Nannette L. Garcia, TX	Niki Lee, TX
Naomi Dove, TX	Nina Garcia, TX
Natalie Martens, CA	Ninfa Aleman, TX
Natalie Rundle, TX	Nisar Ahmed, TX
Natalie Van Leekwijck, OR	Niyi Vinson, TX
Natasha Tucket, TX	NM Hoover, TX
Nathan E. Root & John Kliewer, KS	Noe Acevedo, TX
Nathan Farenkopf, TX	Noe Villareal Jr, TX
Nathan Gilbert, TX	Noelda Rodriguez, TX
Nathaniel Watkins, TX	Noelle Meisser, TX
Nayeli Zenteno, TX	Noemi Blanco, TX
Neal Baron, TX	Nohemi Gonzalez, TX
Neal Baron, TX	Nonya Cox, TX
Neal F. Runnels, TX	Nora Hdz, TX
Neal Howerton, TX	Nora Rela, TX
Neal Stucki, TX	Norberto P. & Lucila B. Alvior, TX
Neal Wilkins, TX	Noreen James, TX
Neala Johnson, TX	Norma De Anda, TX
Ned Sheets, TX	Norma Moore, TX
Neil Angelo, TX	Norma Raymond, TX
Neil Mcqueen, TX	Norma Saenz, TX
Neil Quarles, TX	Norma Vela, TX
Nelda Reid, TX	Norman Negrete, TX
Nelda Salinas, TX	Norman Williams, TX
Nelda Ursula Montalvo, TX	Octavio Loera, TX
Nelda Villacana, TX	Odilia Jimenez, TX
Nelie Edens, TX	Odilia Leal-McBride, TX
Nettie Standiford, TX	Odilon & Maria Guadalupe Amador, TX
Netzahualcoyolt Rivas & Luna Ju Gonzalez, TX	Olivia Vale, TX
Nghi Pham Kroll, TX	Olka Forster, TX
Nicholaus Salinas, TX	Oluwadare Michael Ayodele, TX
Nick Delossantos, TX	Omar Elizondo, TX
Nick Kiger, TX	Oralia Rivera, TX
Nick Noy, TX	Oralia Rodriguez, TX
Nicole Clustrom, TX	Orlando Lopez, TX
	Oscar Garcia, TX
	Otila Delgado, TX

Individuals (continued)

Otilia Castro, TX	Patricia Gonzales, TX
Ovi Atkinson & Arnulfo Atkinson, TX	Patricia Jones, TX
P. S. Allison, TX	Patricia Jones, TX
Pam Evans, TX	Patricia Kelcher, TX
Pam Sohan, TX	Patricia Lareau, TX
Pam Sonnen, TX	Patricia Matthews, TX
Pam Wetzels, TX	Patricia Murdock, TX
Pam Zeller, TX	Patricia Notaro, TX
Pamela Berg, TX	Patricia Okruhilk, TX
Pamela Davison, TX	Patricia Pasztor, TX
Pamela Evans, TX	Patricia Patteson, TX
Pamela Hardwick, TX	Patricia Schon, TX
Pamela Jackson, TX	Patricia Seitz, TX
Pamela Kurner, TX	Patricia Spencer, TX
Pamela Lienhard, TX	Patricia Stella, TX
Pamela Miller, TX	Patricia Thomson, TX
Pamela Phillips, TX	Patricia Younger, TX
Pamela Phillips, TX	Patrick Anderson, TX
Pamela Saez, TX	Patrick Boot, TX
Pamela Turlak, TX	Patrick De La Garza Und Senkel, TX
Pamela Vise, TX	Patrick Garcia, TX
Parnelle Wallis, TX	Patrick Purdy, TX
Pat Ballard, TX	Patrick Vacek, TX
Pat Bliss, TX	Patsy Gross, TX
Pat Glynn, TX	Patti Edelman, TX
Pat Johnson, TX	Patti Iles, TX
Pat Lane, TX	Patty Garcia, TX
Pat Perry, TX	Patty Millspaugh, TX
Pat Roberson, TX	Paul Bae, TX
Pat Suarez, TX	Paul Brown, TX
Pat Vassilakidis, TX	Paul Cardwell, TX
Patrice Johnson, TX	Paul Durr, TX
Patricia Beltran, TX	Paul Fleeman, TX
Patricia Bennett, TX	Paul Jakubik, TX
Patricia Berzon, TX	Paula Fontaine, TX
Patricia Bocanegra, TX	Paula Harrington, TX
Patricia Brooks, TX	Paula Hunt, TX
Patricia E. Gonzales, TX	Paula J. Knoll, TX
Patricia Ellis, TX	Paula Osuna, TX
Patricia Flynn-Williams, TX	Paula Sigler, TX
Patricia Frick, TX	Paula Wyche, TX
Patricia Ganger, MI	Pauline Moore, TX
	Payten Maness, TX

Individuals (continued)

Pearl Fry, TX
Pedro Cantu, TX
Pedro Casares, TX
Pedro D. Lara, TX
Peggy Brod, TX
Peggy Cope, TX
Peggy Lamb, TX
Penny Green, TX
Penny Whitaker, TX
Percy Dadabhoy, TX
Perez Mario Presno et ux., Jalisco,
MEXICO
Perez Tomas, Jr., TX
Pete Torres, TX
Peter Hancock, TX
Peter S. Pauley, FL
Peter Stuart, TX
Phil Nelson, TX
Phil Shephard, TX
Phillip Ceballos, TX
Phillip Scott, TX
Phillip Shelp, TX
Phillip Shephard, TX
Phillip Shephard, TX
Phyllis Burks, TX
Phyllis Hall, TX
Pippa Brooks, TX
Prasanna Nirgudkar, TX
Preciosa Johnson, TX
Priscilla Jackert, TX
Priscilla Rodriguez, TX
Quinta Wilkinson, TX
R Buxton, TX
R L, TX
R. B., CA
Rachel McLish, CA
Rachel Stark, TX
Rachel Stroud, TX
Rafael Martinez, TX
Rafael Pardo, TX
Rafael Salazar III, TX
Rafaela Moreno, TX

Ralph Tobin, TX
Ralph Underwood, TX
Ralph Ward, TX
Ramadevi Sundaresan, TX
Ramiro Cuevas, TX
Ramiz Layaud-Boulat, TX
Ramon Mendez, TX
Randall Brady, TX
Randolph Willoby, TX
Randy Lopez, TX
Randy Roy, TX
Randy Thomas, TX
Ranjana Bhandari, TX
Ranjana Pallana, TX
Raquel Estevez, TX
Raul Alonso, Jr., TX
Raul Arevalo, TX
Raul Bustiflos, TX
Raul Gard, TX
Raul Rodriguez, TX
Raul Rodriguez, TX
Ray C. Telfair II, Ph.D., TX
Ray C. Telfair II, Phd, TX
Ray Recce, TX
Ray Reece, TX
Ray Rose, TX
Ray Swiatkowski, TX
Rayford L. Pointer, Jr., AK
Raymond Dodam, TX
Reagan S. and Carrol D. Stone, TX
Reann Handy, TX
Rebecca Boatman, TX
Rebecca Folge, TX
Rebecca Hall, TX
Rebecca M Bilokur-Tobias, TX
Rebecca Marshall, TX
Rebecca McCuistion, TX
Rebecca Merrill, TX
Rebecca Miller, TX
Rebecca Pollinzi, TX
Rebecca Rodriguez, TX
Rebecca Rodriguez, TX
Rebecca Sharp, TX

Individuals (continued)

Rebecca Sims, TX	Richard Lothe, TX
Rebecca Trammell, TX	Richard Lucio, TX
Rebecca Wren, TX	Richard Maddern, TX
Rebekah Gomez Hererra, TX	Richard Madole, TX
Recio Jesus, TX	Richard Powe, TX
Reece Chesson, TX	Richard Ramos, TX
Refuel Zavala, TX	Richard Richter, TX
Regina Stanley, TX	Richard Schlenk, TX
Regina Weber, TX	Richard Slawinski, TX
Remmic Lewis, TX	Richard Turcotte, TX
Rena DeLucia, TX	Richard Walsh, TX
Rene & Noemi Gonzalez, TX	Richard Wayne, TX
Rene Garza, TX	Rick Boykin, TX
Rene Vanya, TX	Rick Cruz, TX
Renee Standley, TX	Rick Dolphin, TX
Rette Browning, TX	Rick Ferchaud, TX
Rev. Luis Ignacio Gameros M Div, TX	Rick Fowler, TX
Reynalda Valle, TX	Rick Gonyo, TX
Rhiannan Bates, TX	Rick Gordon, TX
Rhonda Bresnehan, TX	Rick Lindsey, TX
Rhonda ferrone, TX	Rick Pearson, TX
Rhonda Harris, TX	Rick Provencio, TX
Rhonda Reichel, TX	Rick Riddle, TX
Ricardo & Maria R. Banuelos, TX	Rick Willing, TX
Ricardo A. Guerra, TX	Ricky Alexander, TX
Ricardo Jr. & Patricia Chapa, TX	Rima Anabtawl, TX
Ricardo L. Olivarez, TX	Rio Hondo Implement Co INC, TX
Ricardo Rojas, TX	Rios Silvestre, TX
Rich Cruz, TX	Rita Everist, TX
Rich Saxon, TX	Rita Harrington, TX
Richard Ahlers, TX	Rita Kniery, TX
Richard Atkinson, NY	Rita Zamora, TX
Richard Aulenbacher, TX	Rizwana Ashraf, TX
Richard B Griffin, VA	Roan Gomez, TX
Richard Bachman, TX	Rob Chavez, TX
Richard Buck, TX	Rob Youker, TX
Richard Caldwell, TX	Robb Ivey, TX
Richard Cook, TX	Robert & Leticia Kirkconnell, TX
Richard Harvey, TX	Robert A. McBee, TX
Richard Harvey, TX	Robert and Frieda Ferguson, TX
Richard Knox, TX	Robert Beverly, TX
Richard Lago, TX	Robert Bills, TX
	Robert Branson, TX

Individuals (continued)

Robert Brunson, TX
Robert Delgado, TX
Robert Delp, TX
Robert Dowling, NY
Robert Fusinato, TX
Robert Garcia Jr, TX
Robert Gardner, TX
Robert Gilliland, TX
Robert Krone, TX
Robert L. Hunter, TX
Robert Lane Sims, TX
Robert Long, TX
Robert Lyons, TX
Robert Mick, TX
Robert Owen, TX
Robert Paredes, TX
Robert Perry, TX
Robert Rogers, TX
Robert Romero, TX
Robert Sanders, GA
Roberto & Constantina Gonzalez, TX
Roberto Alvarado, TX
Roberto Reyes, TX
Roberto Rodriguez, TX
Robin Brownell, TX
Robin Kendrick-Yates, TX
Robin Mains, TX
Robin Ramson, TX
Robin Sherwin, TX
Robyn Padgett, TX
Rochelle Brackman, TX
Rocio Hernandez, TX
Rock Morris, TX
Rodolfo Flores, TX
Rodolfo Garcia, TX
Rodolfo Rivera, TX
Roel Cantu, TX
Rogelio Sendejo, Jr., TX
Rogelio Solis, TX
Rogelio Villegas, TX
Roger Knudson, TX
Roger Mathre, TX

Roger Newmann, TX
Roger P. & Ramona J. Washburn, KS
Roland Creswell, TX
Rolando Gonzalez, TX
Rolando Gurzu, TX
Romina Bres, TX
Ron & Kellie Leclair, CA
Ron Barbosa, TX
Ron Duke, TX
Ron Marshall, TX
Ron Rather, SD
Ron Unger, TX
Ron Young, TX
Rona Neuneker, TX
Ronald Barron, TX
Ronald Parry, TX
Ronald Pierce, TX
Ronald Shenberger, TX
Ronald Smith, TX
Ronnie Weiss, TX
RosaLinda B. Flores, TX
Rosalinda Gonzales, TX
Rosario Martinez, TX
Rose Bowden, TX
Rose Maria Cruz Escobar, TX
Rose Mouton Yore, MI
Rose Ouderkirk, TX
Rose Townsend, TX
Rosemary Carson, TX
Rosie Khan, TX
Rossana Bogorad, TX
Rossana Torio, TX
Roxana Gonzalez, TX
Roxanne Carrion, TX
Roxanne Feldpausch, TX
Roxanne M. Ray, TX
Roxanne Seibert, TX
Roy Alex Gomez, TX
Roy Hill, TX
Roy Rainwater, TX
Royce Boon, TX
Ruben Ochoa, TX
Ruben Vasquez, TX

Individuals (continued)

Rudy and Barbara Stippec, TX

Russell Barros, TX

Russell Maxwell, TX

Ruth Ann Mahoney, TX

Ruth Escalera, TX

Ruth Heino, TX

Ruth Keitz, TX

Ruth Rogers, ME

Ruth Winkler, TX

Ryan Bonavea, TX

Ryan Garcia, TX

Ryan Guillen, TX

Ryan Hochstatter, TX

Ryan Sciulli, TX

Ryan W, TX

S Carter, TX

S E Williams, TX

S. Reagan Stone & Carroll D. Stone, TX

Sabine Williams, TX

Sabrina Eckles, TX

Sally Blixt, TX

Sally Blixt, TX

Sally H McPherson & Nancy Holmes, TX

Sally H McPherson & Nancy Holmes, NC

Sally Jacques, TX

Sally McAfee, TX

Sally McCoy, TX

Sally Simpson, TX

Sam Dibrell, TX

Sam Manatt, III & Hilda Manatt, TX

Sam Stampot, TX

Sam You, TX

Saman Azeez, TX

Samantha Beiermann, TX

Samantha Ceballos, TX

Samantha Garcia, TX

Samantha Reyes, TX

Samara Kvapil, TX

Samuel Boazman, TX

Samuel Hensley, TX

Samuel Skidmore, TX

Samuela Walker, TX

Sandi Hebley, TX

Sandra Barreda, TX

Sandra Bieri, TX

Sandra Boylston, FL

Sandra Breakfield, TX

Sandra Burson, TX

Sandra Byrd, TX

Sandra Calhoun, TX

Sandra Castillo, TX

Sandra Chapman Burson, TX

Sandra Cole, TX

Sandra Descher, TX

Sandra Fults, TX

Sandra Gianna Solis, TX

Sandra Gonzalez, TX

Sandra Heggen, TX

Sandra Lane, TX

Sandra Lynn, TX

Sandra Montesinos, TX

Sandra Raef, TX

Sandra Sargeant, TX

Sandra Sparks, TX

Sandra Stevenson, TX

Sandra Stofan, TX

Sandra Streb, TX

Sandra Ura, TX

Sandra Uribe, VA

Sandra Vallejo, TX

Sandra Velasquez, TX

Sandra Woodall, TX

Sandy Dwarka, NJ

Sandy Phitlips, TX

Sandy Ransom, TX

Sandy Sanderson, TX

Sandy York, TX

Santiago Gomez, TX

Santollo Jesus, TX

Santos Delgado, TX

Sara Gilath, TX

Sara Moreno, TX

Sara Neuder, TX

Sara Straube, TX

Sarah Andersen, TX

Individuals (continued)

Sarah Bijoy, TX
Sarah Boban, TX
Sarah Cunningham, TX
Sarah Desousa, TX
Sarah Fickling, TX
Sarah Funk, TX
Sarah Gilath, TX
Sarah Jeffords, NY
Sarah Kennedy, TX
Sarah McGovern, CA
Sarah Svadlenka, TX
Sarahi Calvo, TX
Sarai Flores, TX
Sarialie Palmer, TX
Saul Del Angel, TX
Saul Guerra, TX
Saul Sanchez, TX
Savannah Brunnemann, TX
Savannah Garcia, TX
Scarlett Bacon, TX
Scott Day, TX
Scott Eustis, LA
Scott Nichol, TX
Scott S Baker, TX
Scott Walker, TX
Sean and Debora Oneil, TX
Sean Byme, TX
Sean Oneil, TX
Segio Trevino, TX
Seon Kim, TX
Seralluna Sanchez, TX
Sergio A. Salinas, TX
Sergio Contreras, TX
Sergio Cordova, TX
Sergio Gonzalez Rangel, TX
Sergio Trevino, TX
Serina Cartagena, TX
Sevana Valero, TX
Severa Krausse, TX
Severo Rey, TX
Shaida Libhart, TX
Shamn Hohl, TX

Shane Goetz, TX
Shane Johnson, TX
Shane Welch, TX
Shanna Bradfod, TX
Shannon Grounds, TX
Shannon Johnson, TX
Shannon Sullivan, TX
Shannon Taylor, TX
Shara Funari, TX
Sharman Petri, TX
Sharon Alexander, TX
Sharon Bailey, TX
Sharon Bramblett, TX
Sharon Daly, TX
Sharon Frank, TX
Sharon Gillespie, TX
Sharon Haywood, TX
Sharon Hohl, TX
Sharon Matz, NY
Sharon Reynolds, TX
Sharon Schafer, TX
Sharon Spalding, TX
Sharron Stewart, TX
Sharyn Hights, TX
Sharynn Regnier, TX
Shaw Richard B, TX
Shawn Troxell, TX
Shawn Weedman, TX
Sheila Chafllins, TX
Sheila Gill, TX
Sheila Rosart, TX
Sheila Simpson, TX
Sheilla Johnson, TX
Shelley Dunham, TX
Shelley Garcia, TX
Shelley Wehberg, TX
Shelly Shivers, TX
Sherilyn Coldwell, TX
Sherri Clark, TX
Sherry Andresen, TX
Sherry Blackshear, TX
Sherry Dana, TX
Sherry Lucas, TX

Individuals (continued)

Sherry Outlaw, TX	Stephanie Lopez, TX
Sherry Sasser, TX	Stephanie Rhodes, ME
Sheyla Mendoza, TX	Stephanie Wagner, TX
Shirin Zarrinnam, TX	Stephen Bates, TX
Shirley Blanco, TX	Stephen Been, TX
Shirley Garcia, TX	Stephen Brown, TX
Shirley Webb, TX	Stephen Burke, TX
Shirline Harris, TX	Stephen Clark, TX
Shonna Davis, TX	Stephen Cloyd, TX
Sid Totten, TX	Stephen Courim, TX
Siena Wimberly, TX	Stephen Englander, TX
Sierra Club, TX	Stephen G. Reeves, TX
Sierra King, TX	Stephen Holler, TX
Silvia Abare, TX	Stephen Jones, TX
Silvia Garza, TX	Stephen Lancaster, TX
Silvia Otivarcs, TX	Stephen Leach, TX
Simcha Aliyah, TX	Stephen Locke, TX
Simone Traverse, TX	Stephen Maynard, TX
Sissi Yado, TX	Stephen Stoker, TX
Sofia Puga, TX	Stephen Stoker, TX
Sondra de Zambrano, TX	Stephen Tarlton Dougherty, TX
Sonia Datray, TX	Steve and Rachel Alvarez-Jett, TX
Sonia Martin, TX	Steve Chelewski, TX
Sonora Hudson, TX	Steve Davidson, TX
Sophia Vassilakidis, TX	Steve Gerson, TX
Sosa Santa Monica Magana, TX	Steve Holtz, TX
Stacey Schodek, TX	Steve Lininger, TX
Staci Robinson, TX	Steve Sivley, TX
Stan Sterba, TX	Steve Wilder, TX
Stanley W & Nadean V Schmidt, OR	Steven C. Roberts, AK
Stefanie Martinez, TX	Steven Fletcher, CT
Stella Denise Gallegos, TX	Steven G. Kellman, TX
Stella Lin, TX	Steven Roy, TX
Stella Mull, TX	Stewart Ball, TX
Stephan Laurent-Faesi, TX	Struan Mcardle, TX
Stephanie Betts, TX	Stuart Crane, TX
Stephanie Doyle, TX	Suchita Toshniwal, TX
Stephanie Ertel, TX	Sue and Gilbert Cardona, TX
Stephanie Kaplan, TX	Sue Burrison and Richard Robinson, TX
Stephanie Kaufman, TX	Sue Lamoreaux, TX
Stephanie Lara, TX	Sue Liu, TX
Stephanie Levinson, TX	Sue White, TX
	Sue Wolfe, TX

Individuals (continued)

Sumeet Batra, TX
Summer Wilbourn, TX
Sunshyne Hendrix, TX
Susan Allen, TX
Susan and John Teague, TX
Susan and Larry Holtzman, TX
Susan Bagley, TX
Susan Beever, TX
Susan Burt, TX
Susan Bussa, TX
Susan Cannon, TX
Susan Cooper, TX
Susan Geery, TX
Susan Greene, TX
Susan Higginbotham, TX
Susan Hradsky, TX
Susan Hradsky, TX
Susan Lefler, TX
Susan Lefler, TX
Susan Lippman, TX
Susan Lovett, TX
Susan Marone, TX
Susan Marone, TX
Susan Mason, TX
Susan McKinley, TX
Susan Muzny, TX
Susan Myers, TX
Susan Nichols, TX
Susan Nichols, TX
Susan Sands Cleary, TX
Susan Swolinski, TX
Susan Thorn, TX
Susan White, TX
Susan Williams, TX
Susana Dunlap, TX
Susie Way, TX
Suzanne Batchelor, TX
Suzanne Bush, TX
Suzanne James, TX
Suzanne M. Osborne, TX
Suzanne McAnna, TX
Suzanne Murray, TX

Suzanne Villarreal, TX
Suzette Kimball, TX
Suzette Konzem, TX
Suzy Eide, TX
Sylvia Duncan, TX
Sylvia Nolan, TX
Sylvia Pena, TX
Sylvia V. MsClanahan, TX
T Logan, TX
T Young, TX
Tabitha Reynolds, TX
Talman Satterfield, TX
Tamalyn Arnold, TX
Tamar Dick, PA
Tamara Houston, TX
Tamara Morillas, TX
Tamela Shafer, TX
Tami Palacky, VA
Tammi Stewart, TX
Tammie Leidner, TX
Tammy Scott, TX
Tania Smith, TX
Tanya Finney, TX
Tanya Kasper, TX
Tanya Nannette Scott, TX
Tanya Nevarov, TX
Tara Usrey, TX
Tatiana Canales, TX
Tawanna Barnes, TX
Tawnya Luke, TX
Taylor Belshaw, TX
Taylor Surratt, TX
Taylor Youngblood, TX
Teddy Arriola, TX
Teofilo Aviles Jr., TX
Teralyn Siller, TX
Teran Hughes, TX
Teran Hughes, TX
Terence Garret, TX
Teresa Cardwell, TX
Teresa French, TX
Teresa Kruse, TX
Teresa Lovino, TN

Individuals (continued)

Teresa Matlock, TX
Teresa Nunez, TX
Teresa Nuñez, TX
Teresa Pietersen, TX
Teresa Saldivar, TX
Teresa Sariol, TX
Teresa Stoeve, TX
Terrance Behner, TX
Terri Blevins, TX
Terri Mc Clung, TX
Terri Rose, TX
Terri Tristan, TX
Terrie Williams, TX
Terry Banda, TX
Terry Burns, TX
Terry Burton, TX
Terry Cline, TX
Terry Copen, TX
Terry Hill, TX
Terry Kosobud, TX
Terry McNeal, TX
Terry Peck, TX
Terry Rohrbach, TX
Terry Stein, TX
Tessa Mccloud, TX
Thad Clarksoles, TX
Thad Soles, TX
Thalia Gonzalez Garcia, TX
Thanh Tran, TX
Theodore Brazeau, TX
Theresa Collings, TX
Theresa L. Rudolph, TX
Theresa Martinez, TX
Theresa Weathers, TX
Therese Baldado, TX
Therese Davis, TX
Thinh Ngo, TX
Thomas A. Guaraldi, TX
Thomas and Lisa Smith, TX
Thomas Blackwell, TX
Thomas Garcia, TX
Thomas Griffin, VA

Thomas Hill, TX
Thomas J. Calme, KY
Thomas Joe Tonnyre, TX
Thomas Mora, TX
Thomas Neinast, TX
Thomas Nicolazzo, TX
Thomas Nieland, TX
Thomas Page, TX
Thomas R. Verhoy, MI
Thor Quick, TX
Tia Bostater, TX
Tiandre Butler, TX
Tiffany Vanderslice, TX
Tim Barr, TX
Tim Duda, TX
Tim Duds, TX
Tim Maschal, TX
Tim Milam, TX
Tim Speece, TX
Timothy Alonzo, TX
Timothy Dean Hubert, TX
Timothy Hissam, TX
Tina Garza, TX
Tina Kerstetter-Kennedy, TX
Tina Theriaque, TX
Todd Hahn, TX
Todd Hanby, TX
Todd Teulon, TX
Tom Ballard, TX
Tom Clayton, TX
Tom Davis, NM
Tom Nieland, TX
Tom Peace, CO
Tom Rust, TX
Tomas G. Martinez, TX
Tomas Sanchez & Lopez Reyna, TX
Tomas Stamp; Petra Camacho, TX
Tommie Denson, TX
Tommy J Saenz, TX
Toni Gonzales, TX
Toni Hill, TX
Toni Miles, TX
Tonie Hernandez, TX

Individuals (continued)

Tony Alicamatt, TX
Torrence Sophronia Martin, NC
Tracey Bonner, TX
Tracey Kunkler, TX
Tracy Briney, TX
Tracy Brophy, TX
Tracy Brown, TX
Tracy Mcmillan, TX
Tracy Musgrove, TX
Tracy Simmons, TX
Tracy Zadwick, TX
Treaa Antony, TX
Tresa Colston, TX
Trevor Robinson, TX
Tria Shaffer, TX
Trigg Wright III, TX
Trish Merrill, TX
Trish Merrill, TX
Troy Mullens, TX
Troy Williams, TX
Turney Maurer, TX
Tyler Ferguson, TX
Tyler Miloy, TX
Tyler Sandoval, TX
U Sakoglu, TX
Uvaldo Vela, TX
Val Brumby, TX
Val Mora, TX
Valenia Gonzalez, TX
Valeriana Flores, TX
Valerie Hernandez, TX
Vanessa Cavazos, TX
Vanessa Ortega, TX
Vanessa Sternick, TX
Vanessa Vigañas, TX
Varena Okwumabua, TX
Vargas Emmanuel B, TX
Vashti Petty, TX
Vasquez Ruben Rosas, TX
Vejoya Viren, TX
Vella Garcia, TX
Vendell Gombarcik, TX

Vera Balog, TX
Vern Crocker & Thersea Crocker, TX
Veronica Hernandez, TX
Veronica Morrison, TX
Veronica Perez, TX
Veronica Rosales, TX
Veva Lane, TX
Vicki Davis, TX
Vicki Matcek, TX
Vicki Wright, TX
Vickie Hime, TX
Vicky Baker, IA
Vicky Sanders, TX
Victor Hugo Valdez, TX
Victor Wong, TX
Victoria Bermea, TX
Victoria Godwin, TX
Victoria Gonzalez, TX
Victoria Guerra, TX
Victoria Hart, TX
Victoria Mathew, TX
Victoria Peyser, DE
Victoria Randall, TX
Victoria Ricks, TX
Victoria Salazar, TX
Vikki Hallen, TX
Vincent Buddy Vasquez, TX
Viola Galvan, TX
Virgil E. & Carolyn Swanberg, TX
Virgina Downing, TX
Virginia Aguilar, TX
Virginia Griffith, TX
Virginia Jevric, TX
Virginia Lee Heath, TX
Vivian Johnson, TX
W Wright, TX
W. Barclay Idsal, CO
Walsdorf Robert M & Kimberly B, TX
Walter B. Birdwell, TX
Walter Breymann, TX
Walter Tashnick, TX
Wanda Kirkpatrick, TX
Wanda Sturrock, TX

Individuals (continued)


Wanda Wintin, TX
Waters Jaime Wayland & Brenda Elizabeth
Water, TX
Waters Ronald Earl & Waters Geraldine,
TX
Wayne Harrison, TX
Wayne Langley, TX
Weldon Lewis, TX
Wenceslao Gana, TX
Wendy Barker, TX
Wendy Dee, TX
Wendy Hauptmann, TX
Wendy Hendrix, TX
Wesley Monroe, AZ
Wesley Moore, TX
Whitney Ward, TX
Wileen Clark, VA
Will Foster, TX
Will Sage, TX
William Heath, TX
William Armstrong, TX
William Armstrong, TX
William Ashbery, TX
William B. Beay, TX
William B. McKinney, TX
William Cook, TX
William David Marsh and Nancy Kay
Marsh, TX
William Forbes, TX
William Forbes, TX
William Hewes, CA
William Hoenes, TX
William J. Mulcahey, TX
William Larowe, TX
William Legett, TX
William Maina, TX

William Michael, TX
William Oscar, TX
William Romfh, TX
William Strong, TX
William Tarbox, TX
William Wildfong, TX
Willie D. Johnson, TX
Willis Gravelle, TX
Willis H. Coleman, Jr., TX
Willy Cupit, TX
Winified Burkett, TX
Winn Adams, WA
Winnie J Tate Morgan, TX
Xandra Leal, TX
Ybarra David Allen, TX
Ybarra Maria Ester C/O Jaramillo Leticia,
TX
Yesenia Herrera, TX
Yesenia Vidaurri, TX
Yolanda Birdwell, TX
Yolanda Garrett, TX
Yolanda Garza-Birtlwell, TX
Yolanda Torres, TX
Yolizbeth Cocano, TX
Yung Marc, TX
Yvette Bonilla - Leach, TX
Yvonne Duker, TX
Yvonne Hansen, TX
Yvonne Ray, TX
Yvonne Zepeda, TX
Zach Myones, TX
Zeb Hanley, TX
Zeilha Garcia, TX
Zeoma Olszewski, TX
Zulma Gregory, TX
Bravo Motor Carriers, Luis Garza, Jr., TX
Gulf Stream Marine, Mark Hoskins, TX

APPENDIX R
DRAFT ENVIRONMENTAL IMPACT STATEMENT COMMENTS AND
RESPONSES

Federal Agencies (FA)

FA2 - U.S. Fish and Wildlife Service

 <p>UNITED STATES DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE Laguna Atascosa National Wildlife Refuge 22817 Doctor Road Los Fresnos, Texas 78566 (956) 748-3607 (956) 748-3609 fax</p>	<p>FA2-1</p> <p>public in the near future. From my perspective, a neighboring LNG facility would not welcome visitors to the area, and could potentially be a safety hazard to those attempting to enjoy the Bahia Grande Unit.</p> <p>The land proposed for the Rio Grande LNG Project and the neighboring Bahia Grande Unit are popular destinations for local anglers. The Brownsville Navigation District (BND) has graciously allowed public access in the area for decades. If developed, the nearly 1,000-acre development site will be closed to public access and therefore reduce a significant portion of those accessible areas.</p> <p>Location and Size of the Project</p> <p>The Rio Grande LNG project is the largest of the three proposed LNG facilities in Brownsville. Due to the size and location of the project, this LNG facility will also destroy nearly 500-acres of wetlands.</p> <p>Inability to Manage Natural Resources</p> <p>Having an LNG facility as large as this project on the southern border of the Bahia Grande Unit would make some resource management activities very difficult. In regards to prescribed fire management, the staff conducting those burns would be much less safe with an LNG facility next door. In addition, the fire fighters who must respond to wild fires will be in particular danger while trying to potentially protect this LNG facility from an approaching fire.</p>	<p>FA2-2</p>	<p>FA2-3</p>	<p>FA2-4</p> <p>The sole source of water that flows into the Bahia Grande wetlands is the "pilot channel" that was constructed in 2005 to re-flood the Bahia Grande wetlands with saline water from the Brownsville Ship Channel. The pilot channel shares its northeast boundary with this LNG project, and once it is developed, there's high likelihood that any debris, spill, or other mishap at the LNG facility could easily enter the Bahia Grande wetlands. The US government, non-profit partners, and local governments have spent a great deal of time and resources on restoring the Bahia Grande wetlands and constructing an LNG facility in close proximity to this valuable resource seems an unnecessary risk.</p> <p>The above-mentioned concerns are the reason why I hope this project is either relocated or not completed at all. I understand that even with concerns from cooperators or other outside agencies, the project may move forward. In the event it is constructed, I also hope that the agencies involved will do their best to consider the wetlands lost, and make a concerted effort to</p>
<p>FA2-2</p> <p>As described in section 4.4.2 of the EIS, the LNG terminal would permanently impact 191.8 acres of wetlands (not 500 acres). As discussed in section 3.3.2 of the EIS, alternative sites were evaluated that would affect more and less acreage of wetlands; however, with the various other criteria analyzed for alternative locations, none provided an environmental advantage over the proposed Project. Since the COE has a goal of "no net loss" of wetlands in the United States, and construction of the Project, if approved, could not proceed without implementation of a COE-approved wetland mitigation plan, impacts on wetlands would be adequately mitigated. The suitability of proposed wetland mitigation is more appropriately handled during the Section 404/Section 10 permit review process, in which applicable federal agencies (the COE and the U.S. Environmental Protection Agency [EPA]) have the authority to impose requirements for compensatory mitigation.</p> <p>As stated in section 4.7.1 of the EIS, prescribed burning, although not allowed on the LNG Terminal site itself, would not be precluded in the adjacent areas. In addition, the northern edge of the project site would be bounded by a 4 lane state highway (SH-48) as well as a 17-foot storm levee. Furthermore, onsite process equipment would be installed at a distance of over 500 feet from SH-48. This would provide sufficient separation distances between any prescribed wild fires and onsite process equipment. We also note that hot embers from wildfires or prescribed burns could reach onsite equipment and piping, however metal components and paving around these components would not be considered a fuel source and would not be susceptible to catching fire. If hot embers did ignite onsite components, RG LNG's proposed hazard and fire mitigation measures described in Section 4.12.1.6 of the EIS would be activated as needed.</p> <p>Section 4.3.2.2 of the final EIS was revised to clarify that construction of the levee would protect the Bahia Grande Channel from potential contamination during construction and operations. In addition, RG LNG would implement its site-specific Spill Prevention, Control, and Countermeasure (SPCC) Plan during construction and operation of the Project to minimize the potential for impacts on surface waters due to spills or leaks of hazardous materials.</p> <p>Comment noted.</p> <p>As described in section 4.4.2 of the EIS, RG LNG is consulting with the COE, EPA, and FWS regarding wetland mitigation plans as part of the permitting process associated with Section 404 of the Clean Water Act (CWA). RG LNG's final wetland mitigation plans would be developed and submitted to the COE, and would be implemented in addition to the construction mitigation measures outlined in RG LNG's Procedures and the measures described in the EIS. Construction of the LNG Terminal would not commence prior to finalization of the wetland mitigation plans and issuance of the COE's CWA Section 404/Section 10 permit.</p>	<p>FA2-3</p>	<p>FA2-4</p>	<p>FA2-5</p> <p>FA2-6</p>	

Federal Agencies (FA)

FA2 - U.S. Fish and Wildlife Service



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Laguna Atascosa National Wildlife Refuge
22817 Octor Road
Los Fresnos, Texas 78666
(956) 748-5607
(956) 748-5609 fax



protect habitat perpetually as an offset to those losses. The mitigation should include protection of the habitat and restoration of any wetlands to make-up for any wetland impacts involved in the development of the Rio Grande LNG project.

FA2-6

Sincerely,

Boyd Blithovde
Boyd Blithovde
Refuge Manager

JA406

169 FERC ¶ 61,131
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Neil Chatterjee, Chairman;
Richard Glick and Bernard L. McNamee.

Rio Grande LNG, LLC
Rio Bravo Pipeline Company, LLC

Docket Nos. CP16-454-000
CP16-455-000

ORDER GRANTING AUTHORIZATIONS UNDER SECTIONS 3 AND 7
OF THE NATURAL GAS ACT

(Issued November 22, 2019)

1. On May 5, 2016, Rio Grande LNG, LLC (Rio Grande) filed an application, in Docket No. CP16-454-000, for authorization under section 3 of the Natural Gas Act (NGA)¹ and Part 153 of the Commission's regulations² to site, construct, and operate facilities for the liquefaction and export of domestically-produced natural gas at a proposed liquefied natural gas (LNG) terminal located on the north embankment of the Brownsville Ship Channel in Cameron County, Texas (Rio Grande LNG Terminal).
2. At the same time, Rio Bravo Pipeline Company, LLC (Rio Bravo) filed a request, under NGA section 7(c)³ and Parts 157 and 284 of the Commission's regulations,⁴ in Docket No. CP16-455-000, for a certificate of public convenience and necessity to construct and operate a new interstate natural gas pipeline system (Rio Bravo Pipeline Project). The proposed project comprises two parallel 42-inch-diameter natural gas pipelines approximately 135.5 miles long, three 180,000 horsepower (hp) compressor stations, an approximately 2.4-mile-long pipeline header system, various valves, metering and pig launcher/receivers, and related facilities located in Jim Wells, Kleberg, Kenedy, Willacy, and Cameron Counties, Texas, to transport natural gas in interstate commerce to

¹ 15 U.S.C. § 717b (2018).

² 18 C.F.R. pt. 153 (2019).

³ 15 U.S.C. § 717f.

⁴ 18 C.F.R. pt. 157 (2019).

the Rio Grande LNG Terminal for processing, liquefaction, and export. Rio Bravo also requests blanket certificates under Part 284, Subpart G of the Commission's regulations to provide open-access transportation services,⁵ and under Part 157, Subpart F of the Commission's regulations to perform certain routine construction activities and operations.⁶

3. For the reasons discussed in this order, we will authorize Rio Grande's proposal under NGA section 3 to construct and operate the Rio Grande LNG Terminal. We will also authorize Rio Bravo's proposal under NGA section 7(c) to construct and operate the Rio Bravo Pipeline Project, and grant the requested blanket certificate authorizations. These authorizations are subject to the conditions discussed herein.

I. Background

4. Rio Grande and Rio Bravo are Texas limited liability companies with their principle place of business in Houston, Texas. Both companies are wholly-owned subsidiaries of NextDecade LNG, LLC (NextDecade),⁷ a U.S. energy project development and management company.⁸ Upon receipt of its requested certificate authorizations and commencement of pipeline operations, Rio Bravo will become a natural gas company within the meaning of section 2(6) of the NGA⁹ and will be subject to the Commission's jurisdiction. As its operations will not be in interstate commerce, Rio Grande will not be a "natural gas company" as defined in the NGA, although it will be subject to the Commission's jurisdiction under NGA section 3.

⁵ 18 C.F.R. pt. 284 (2019).

⁶ 18 C.F.R. pt. 157 (2019).

⁷ Formerly NextDecade, LLC, the company was renamed NextDecade LNG, LLC on August 11, 2017. Rio Grande and Rio Bravo's August 23, 2017 Informational Filing at 2.

⁸ NextDecade LNG, LLC is wholly-owned by NextDecade Corporation, a publicly traded company.

⁹ 15 U.S.C. § 717a(6).

II. Proposals

A. Rio Grande LNG Terminal (Docket No. CP16-454-000)

5. Rio Grande seeks authorization to site, construct, and operate the Rio Grande LNG Terminal on an approximately 1,000-acre site located on the northern embankment of the Brownsville Ship Channel in Cameron County, Texas. Construction of the terminal would take place in six sequential stages associated with each proposed liquefaction train. The project would produce a nominal capacity of up to 27 million metric tonnes per annum (MTPA) of LNG for export.

6. The Rio Grande LNG Terminal would include the following major facilities: six natural gas liquefaction trains, each with a nominal capacity of 4.5 MTPA, for a total nominal capacity of 27 MTPA;¹⁰ four full-containment LNG storage tanks, each with a net capacity of approximately 180,000 cubic meters (m³); two LNG carrier loading berths; one 1,500-foot-diameter turning basin; LNG truck loading and unloading facilities with four loading bays;¹¹ two Natural Gas Liquids (NGL) truck loading bays; and other facilities such as administrative buildings, a central control building, a workshop, a warehouse, electrical equipment enclosures, a communication system, and other support structures.

7. The Rio Grande LNG Terminal would be located on approximately 750.4 acres of a 984.2-acre parcel of land owned by the Brownsville Navigational District, a political subdivision of Texas that operates the Port of Brownsville. Rio Grande would lease the

¹⁰ Rio Grande states that each liquefaction train will contain the following equipment: (i) facilities to remove from the feed gas carbon dioxide, hydrogen sulfide, and other sulfur compounds; water and mercury; and heavy hydrocarbons; (ii) refrigerant compressors driven by two natural gas-fired combustion turbines to cool and liquefy gas; (iii) associated fire and gas safety systems; (iv) associated control systems and electrical infrastructure; (v) and utility connections, telecommunications, and other support systems.

¹¹ Rio Grande states that LNG loaded onto trucks at the terminal will be used for vehicular natural gas purposes at truck fueling facilities in South Texas and will not be reintroduced into the U.S. natural gas pipeline system.

site from the Brownsville Navigational District for a term of up to 50 years.¹² Rio Grande anticipates that the construction process will take place in six stages, with the start of construction for each of the six liquefaction trains occurring between six and nine months after the prior train's commencement of construction date.

8. Rio Grande received authorization from the Department of Energy, Office of Fossil Energy (DOE/FE) in August 2016 to export annually up to 1,318 billion cubic feet (Bcf) (approximately 3.6 Bcf per day (Bcf/d)) equivalent of natural gas in the form of LNG to countries with which the United States has a Free Trade Agreement.¹³ In addition, Rio Grande currently has pending before the DOE/FE an application to export annually up to 1,318 Bcf equivalent of LNG to other nations with which the U.S. permits such trade, but has not entered into a Free Trade Agreement.¹⁴

B. Rio Bravo Pipeline Project (Docket No. CP16-455-000)

1. Facilities and Service

9. In conjunction with the Rio Grande LNG Terminal, Rio Bravo seeks authorization under NGA section 7(c) to construct and operate a new 137.9-mile-long interstate natural gas transmission system designed to provide up to 4.5 Bcf per day (i.e., 4,500,000 dekatherms per day (Dth/d)) of firm natural gas transportation service. Natural gas transported on the Rio Bravo Pipeline will be delivered from interconnects with the existing natural gas pipeline grid located in the Agua Dulce Market Area¹⁵ in Nueces

¹² NextDecade, Rio Grande's parent company, executed an Option to Lease the acreage from the Brownsville Navigation District on November 6, 2013. The final acreage will be determined before the lease is executed, which would coincide with the timing of a final investment decision (i.e., after project approval but before the commencement of construction).

¹³ *Rio Grande LNG, LLC*, DOE/FE Docket No. 15-190-LNG, Order No. 3869 (2016).

¹⁴ The application, filed on December 23, 2015, is pending before DOE/FE in Docket No. 15-190-LNG.

¹⁵ The Agua Dulce Market Area refers, collectively, to the proposed interconnects located in the vicinity of the Agua Dulce Hub in Nueces County, Texas, which includes connections to the following pipelines: Houston Pipe Line Company Pipeline, Gulf South Pipeline, Kinder Morgan Texas Pipelines, Natural Gas Pipeline Co. of America, Transcontinental Gas Pipeline, Tennessee Gas Pipeline, TransTexas Gas, and EPGT Texas Pipeline.

County, Texas, to the Rio Grande LNG Terminal for liquefaction and export. The proposed Rio Bravo Pipeline Project would consist of the following facilities:

- 2.4 miles of 42-inch-diameter pipeline, including 0.8 mile of parallel pipeline, at the upstream end of the pipeline system that would receive gas from multiple interconnects with the existing natural gas pipeline grid in Kleberg and Jim Wells Counties, Texas (Header System);
- 135.5 miles of 42-inch-diameter pipeline traversing Kleberg, Kenedy, Willacy, and Cameron Counties, Texas (Pipeline 1);
- 135.5 miles of 42-inch-diameter pipeline that would parallel Pipeline 1 with a 25-foot offset (Pipeline 2);
- an 180,000-hp compressor station in Kleberg County that would include six 30,000-hp natural gas turbine compressor units, two pig launchers (one for each pipeline), and a metering site (Compressor Station 1);
- an 180,000-hp compressor station in Kleberg County that would include six 30,000-hp natural gas turbine compressor units and two pig launchers/receivers (Compressor Station 2);
- an 180,000-hp compressor station in Cameron County, within the Rio Grande LNG Terminal boundary, that would include six 30,000-hp electric-driven turbine compressor units, a gas custody transfer meter, and pig receivers (Compressor Station 3);¹⁶

¹⁶ Each of the three mainline compressor stations would be constructed in six stages, similar to and in parallel with construction of the terminal stages. Each compressor station stage would include installation of one 30,000-hp natural gas or electric turbine unit and associated auxiliary equipment.

- two 30,000-hp interconnect booster compressor stations in Kenedy County, each containing one 30,000-hp natural gas turbine compressor unit and a metering site;¹⁷
- four metering sites along the 2.4-mile-long Header System; and
- six mainline valve sites.

Rio Bravo states that the proposed pipeline system will be designed, constructed, and operated to transport up to 2.25 Bcf/d (2,250,000 Dth/d) per pipeline, for a total of up to 4.5 Bcf/d (4,500,000 Dth/d). Construction of the Rio Bravo Pipeline would occur in two phases. Phase one (Pipeline 1, the header system, the compressor stations, and the aboveground facilities) would be constructed to coincide with the completion of the first liquefaction train of the LNG Terminal facilities. Construction of Pipeline 2 (i.e., phase two) would commence about 18 months after Pipeline 1 is placed in service. Rio Bravo estimates that the total cost of the Rio Bravo Pipeline Project is approximately \$2,173,362,909.

10. Rio Bravo states that it conducted a binding open season from May 24 to June 23, 2016, for the proposed firm transportation service to be offered by the project.¹⁸ As a result of the open season, Rio Bravo states that it received one bid, from its affiliate RioGas Marketing, LLC (RioGas), for the full capacity of the pipeline.¹⁹ Rio Bravo executed a precedent agreement with RioGas for the total capacity of the Rio Bravo Pipeline system for a 20-year term at a negotiated rate.²⁰

11. Rio Bravo requests approval of its *pro forma* tariff. Rio Bravo proposes to offer firm transportation service under Rate Schedules FTS, interruptible transportation service under Rate Schedule ITS, and parking and loan service under Rate Schedule PALS.

¹⁷ Rio Bravo states that each booster station will be comprised of a single natural gas turbine compressor unit, located at milepost (MP) 19.7 (proposed interconnect with the Texas Eastern Pipeline) and MP 25.7 (proposed interconnect with the Williams Transco North Padre Island Lateral). Both booster stations would be constructed contemporaneously with the construction of Pipeline 1.

¹⁸ Rio Bravo's June 28, 2016 Filing at 1.

¹⁹ *Id.* at 2.

²⁰ *Id.*

2. Blanket Certificates

12. Rio Bravo requests a blanket certificate of public convenience and necessity pursuant to Part 284, Subpart G of the Commission's regulations, authorizing Rio Bravo to provide transportation service to customers requesting and qualifying for transportation service under its proposed FERC Gas Tariff, with pre-granted abandonment authorization.²¹

13. Rio Bravo also requests a blanket certificate of public convenience and necessity pursuant to Part 157, Subpart F of the Commission's regulations, authorizing certain future facility construction, operation, and abandonment.²²

III. Procedural Matters

A. Notice, Intervention, Comments, and Protests

14. Notice of Rio Grande and Rio Bravo's joint application was issued on May 19, 2016, and published in the *Federal Register* on May 26, 2016,²³ with interventions, comments, and protests due by June 9, 2016. Timely, unopposed motions to intervene are granted by operation of Rule 214(c) of the Commission's Rules of Practice and Procedure.²⁴ Notwithstanding Rio Grande's and Rio Bravo's opposition to several timely-filed motions to intervene,²⁵ the Commission granted all timely, opposed motions to intervene.²⁶ Several individuals and organizations filed late motions to intervene, which the Commission also granted.²⁷

²¹ 18 C.F.R. § 284.221.

²² 18 C.F.R. § 157.204.

²³ 81 Fed. Reg. 33,519.

²⁴ 18 C.F.R. § 385.214(c) (2019). Timely motions to intervene include those filed during the comment period for the draft environmental impact statement. *See id.* § 380.10(a)(1)(i).

²⁵ *See* Rio Grande's and Rio Bravo's June 22, 2016 Answer in Opposition in Docket Nos. CP16-454-000 and CP16-455-000, and Rio Grande's July 7, 2016 Answer in Opposition in Docket No. CP16-454-000.

²⁶ Secretary's May 17, 2017 Notice Granting Interventions.

²⁷ *Id.*

15. Intervenor filed three protests. Defenders of Wildlife and Sierra Club filed a joint protest, requesting that the Commission deny the applications based on the projects' alleged significant adverse environmental and economic impacts. Defenders of Wildlife and Sierra Club urge the Commission to consider: (i) the LNG Terminal's proposed output and the possibility that Rio Grande will seek a future authorization to increase output; (ii) proposed design alternatives to power the liquefaction trains; (iii) the possibility that exporting LNG will increase domestic natural gas production and domestic gas prices; and (iv) the projects' effect on global greenhouse gas (GHG) emissions. Nearby residents Roberto de los Santos, Beatriz Zurita, and Raul Zurita (collectively, Santos/Zurita)²⁸ and Vecinos Para el Bienestar de la Comunidad Costera (Vecinos)²⁹ also filed protests. In their protests, Santos/Zurita and Vecinos urge the Commission to deny the applications as contrary to the public interest because of alleged significant impacts the project will have on the health, safety, and quality of life of nearby communities. Rio Grande and Rio Bravo filed a joint answer to the protests.³⁰

²⁸ The intervenors state that they are residents of an unincorporated residential development known as a *colonia*, which are recognized by the Texas Attorney General's Office as "substandard housing developments prevalent along the Texas-Mexico border where residents lack basic services such as drinking water, sewage treatment, and paved roads."

²⁹ Vecinos is "an unincorporated association of residents of Laguna Heights, Texas and nearby areas that seeks to protect and improve the health, standard of living, and economic development of the coastal community in the Rio Grande Valley of South Texas." Vecinos' June 9, 2016 Motion to Intervene and Protest.

³⁰ Rio Grande and Rio Bravo's June 22, 2016 Consolidated Answer. Although the Commission's Rules of Practice and Procedure generally do not permit answers to protests, 18 C.F.R. § 385.213(a)(2), we will accept Rio Grande and Rio Bravo's response because it clarifies the concerns raised and provides information that has assisted in our decision making.

16. In addition, numerous entities and individuals filed comments raising various economic, environmental, and safety concerns about the proposed projects, including, among other things, concerns about the visual impacts of the LNG Terminal, socioeconomic impacts, air emissions, LNG safety and security, proximity of the proposed terminal site to SpaceX's South Texas Launch Site, threatened and endangered species, and wetlands impacts. These concerns are addressed in the final Environmental Impact Statement (EIS), and, as appropriate, in the environmental analysis below.

B. Request for Hearing

17. Defenders of Wildlife requested a formal hearing.³¹ The Commission has broad discretion to structure its proceedings so as to resolve a controversy in the best way it sees fit.³² An evidentiary, trial-type hearing is necessary only where there are material issues of fact in dispute that cannot be resolved on the basis of the written record.³³ Defenders of Wildlife raises no material issue of fact that the Commission cannot resolve on the basis of the written record. Accordingly, the Commission denies the request for a formal hearing.

IV. Discussion

A. Rio Grande LNG Terminal (Docket No. CP16-454-000)

18. The construction and operation of the proposed LNG Terminal facilities and site of their location require approval by the Commission under section 3 of the NGA.³⁴

³¹ Defenders of Wildlife's June 9, 2016 Motion to Intervene at 2.

³² See *Columbia Gas Transmission, LLC*, 161 FERC ¶ 61,200, at P 15 (2017) (*Columbia*) (citing *Stowers Oil and Gas Co.*, 27 FERC ¶ 61,001 (1984) (Commission has discretion to manage its own procedures); *PJM Transmission Owners*, 120 FERC ¶ 61,013 (2007)).

³³ See, e.g., *Columbia*, 161 FERC ¶ 61,200 at P 15 (citing *Dominion Transmission, Inc.*, 141 FERC ¶ 61,183, at P 15 (2012); *Southern Union Gas Co. v. FERC*, 840 F.2d 964, 970 (D.C. Cir. 1988)).

³⁴ The regulatory functions of NGA section 3 were transferred to the Secretary of Energy in 1977 pursuant to Section 301(b) of the Department of Energy Organization Act, Pub. L. No. 95-91, 42 U.S.C. § 7101 *et seq* (2012). In reference to regulating the imports or exports of natural gas, the Secretary of Energy subsequently delegated to the Commission the authority to approve or disapprove the construction and operation of natural gas import and export facilities and the site at which such facilities shall be located. The most recent delegation is in DOE Delegation Order No. 00-004.00A,

Although section 3 provides that an application for the exportation or importation of natural gas shall be approved unless the proposal “will not be inconsistent with the public interest,” section 3 also provides that an application may be approved “in whole or in part, with such modification and upon such terms and conditions as the Commission may find necessary or appropriate.”³⁵ NGA section 3(a) also provides that for good cause shown, the Commission may make supplemental orders as it may find “necessary or appropriate.”³⁶

19. Sierra Club and Defenders of Wildlife assert that Rio Grande’s proposal will raise domestic natural gas prices and increase domestic gas production. Sierra Club and Defenders of Wildlife state that the Commission must (i) consider the possibility that Rio Grande will seek to increase exports in the future, and (ii) analyze the increased environmental impacts that would result from increasing the project output. With respect to environmental harm, Sierra Club and Defenders of Wildlife contend that the project will result in indirect environmental impacts from induced natural gas production and consumption activities, and is thus contrary to the public interest.

20. We decline to address these claims as they concern impacts associated with the exportation of the commodity natural gas, rather than the proposal before the Commission. Section 3(a) of the NGA provides, in part, that “no person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country without first having secured an order of the Commission authorizing it to do so.”³⁷ As noted above, in 1977, the Department of Energy Organization Act transferred the regulatory functions of section 3 of the NGA to the Secretary of Energy.³⁸

effective May 16, 2006. Applications for authorization to import or export natural gas must be submitted to the Department of Energy (DOE). The Commission does not authorize importation or exportation of the commodity itself. *See EarthReports, Inc. v. FERC*, 828 F.3d 949, 952-53 (D.C. Cir. 2016) (*EarthReports*) (detailing how regulatory oversight for the export of LNG and supporting facilities is divided between the Commission and DOE).

³⁵ For a discussion of the Commission’s authority to condition its approvals of LNG facilities under section 3 of the NGA, *see, e.g., Distrigas Corporation v. FPC*, 495 F.2d 1057, 1063-64 (D.C. Cir. 1974), *cert. denied*, 419 U.S. 834 (1974), and *Dynegy LNG Production Terminal, L.P.*, 97 FERC ¶ 61,231 (2001).

³⁶ 15 U.S.C. § 717b(a).

³⁷ *Id.*

³⁸ Department of Energy Organization Act, Pub. L. No. 95-91, 42 U.S.C. § 7101 *et seq.* Section 301(b) of the DOE Act transferred regulatory functions under section 3 of

Subsequently, the Secretary of Energy delegated to the Commission authority to “[a]pprove or disapprove the construction and operation of particular facilities, the site at which such facilities shall be located, and with respect to natural gas that involves the construction of new domestic facilities, the place of entry for imports or exit for exports....”³⁹ The Secretary, however, has not delegated to the Commission any authority to approve or disapprove the import or export of the commodity itself, or to consider the types of issues raised by Sierra Club and Defenders of Wildlife as part of the Commission’s public interest determination under NGA section 3(a).⁴⁰

21. DOE/FE, pursuant to its authority under NGA section 3, has authorized Rio Grande to export up to 1,318 Bcf per year of domestically-produced natural gas (equal to approximately 26.1 MTPA of LNG)⁴¹ to free trade nations from the proposed Rio Grande

the NGA from the Commission’s predecessor, the Federal Power Commission (FPC), to the Secretary of Energy. Section 402 of the DOE Act transferred regulatory functions under other sections of the NGA, including sections 1, 4, 5, and 7, from the FPC to the Federal Energy Regulatory Commission. Section 402(f) states:

(f) Limitation

No function described in this section which regulates the exports or imports of natural gas ... shall be within the jurisdiction of the Commission unless the Secretary assigns such a function to the Commission.

³⁹ DOE Delegation Order No. 00-004.00A (effective May 16, 2006).

⁴⁰ See *Freeport LNG Development, L.P.*, 148 FERC ¶ 61,076, *reh’g denied*, 149 FERC ¶ 61,119 (2014), *aff’d sub nom. Sierra Club v. FERC*, 827 F.3d 36 (D.C. Cir. 2016) (*Freeport*) (finding that because the Department of Energy, not the Commission, has sole authority to license the export of any natural gas through LNG facilities, the Commission is not required to address the indirect effects of the anticipated export of natural gas in its NEPA analysis). See also *Sabine Pass Liquefaction, LLC*, 146 FERC ¶ 61,117, *reh’g denied*, 148 FERC ¶ 61,200 (2014), *aff’d sub nom. Sierra Club v. FERC*, 827 F.3d 59 (D.C. Cir. 2016) (*Sabine Pass*) and *EarthReports*, 828 F.3d 949.

⁴¹ This conversion assumes a gas density of 0.7 kilograms per cubic meter of gas.

LNG Terminal.⁴² DOE/FE's order approving Rio Grande's export volumes to Free Trade Agreement nations states that "[i]n light of DOE's statutory obligation to grant this Application without modification or delay, there is no need for DOE/FE to review other arguments asserted by Rio Grande in support of the Application."⁴³

22. As the U.S. Court of Appeals for the D.C. Circuit has explained, an LNG proposal shall be authorized unless the proposal "will not be consistent with the public interest."⁴⁴ We have reviewed Rio Grande's application to determine if the siting, construction, and operation of its LNG Terminal as proposed would not be consistent with the public interest.⁴⁵ Rio Grande's proposed LNG Terminal will be located on 984.2 acres of land, which are owned by a commercial port (Brownsville Navigational District) and intended for industrial development. The northern boundary of the terminal site is a four-lane highway, while the Brownsville Ship Channel serves as the southern boundary. The proposed site for the LNG Terminal is currently undeveloped, zoned for commercial and industrial use, and contains areas of dredge spoils from the original dredging of the existing, man-made ship channel. Further, as discussed below, the EIS prepared for the proposed project finds that most of the direct environmental impacts from construction of the proposed Rio Grande LNG Terminal are expected to be temporary or short term during construction and operation, while some long-term and permanent environmental

⁴² See *Rio Grande LNG, LLC*, DOE/FE Docket No. 15-190-LNG, Order No. 3869 (2016). As noted earlier, the application to export LNG to non-Free Trade Agreement nations, submitted on December 23, 2015, is currently under DOE review in DOE/FE Docket No. 15-190-LNG.

⁴³ *Id.* at 6. Section 3(c) provides that the exportation and importation of natural gas to and from countries with which there is in effect a Free Trade Agreement "shall be deemed to be consistent with the public interest and applications for such importation and exportation shall be granted without modification or delay."

⁴⁴ 15 U.S.C. § 717b(a). *EarthReports*, 828 F.3d at 953 (citing *W. Va. Pub. Servs. Comm'n v. U.S. Dep't of Energy*, 681 F.2d 847, 856 (D.C. Cir. 1982)) ("sets out a general presumption favoring such authorization"); see also *Sierra Club v. U.S. Dep't of Energy*, 867 F.3d 189, 203 (D.C. Cir. 2017).

⁴⁵ See *Nat'l Steel Corp.*, 45 FERC ¶ 61,100, at 61,332-33 (1988) (observing that DOE, "pursuant to its exclusive jurisdiction, has approved the importation with respect to every aspect of it except the point of importation" and that the "Commission's authority in this matter is limited to consideration of the place of importation, which necessarily includes the technical and environmental aspects of any related facilities.").

impacts would also occur.⁴⁶ With the exception of certain cumulative impacts contributed by the Rio Grande LNG Terminal (e.g., on surface water quality in the Brownsville Ship Channel during operational vessel transits; on the federally-listed ocelot and jaguarundi from habitat loss and increased potential for vehicular strikes during construction; on the federally listed northern aplomado falcon from habitat loss, on visual resources due to the presence of new facilities, and on nearby noise-sensitive areas (NSA) during nighttime construction), implementation of Rio Grande's proposed mitigation measures and additional measures recommended by staff in the EIS and adopted in this order would ensure that impacts in the project area would be avoided or minimized, and reduced to less-than-significant levels.⁴⁷

23. In accordance with the Memorandum of Understanding signed on August 31, 2018, by the Commission and the Pipeline and Hazardous Materials Safety Administration (PHMSA) within the U.S. Department of Transportation (DOT),⁴⁸ PHMSA undertook a review of the proposed facility's ability to comply with the federal safety standards contained in Part 193, Subpart B, of Title 49 of the Code of Federal Regulations.⁴⁹ On March 26, 2019, PHMSA issued a Letter of Determination indicating Rio Grande has demonstrated that the siting of its proposed LNG facilities complies with those federal safety standards.⁵⁰ If the proposed project is subsequently modified so that it differs from the details provided in the documentation submitted to PHMSA, further review would be conducted by PHMSA.

24. Rio Grande is proposing to operate its LNG Terminal under the terms and conditions mutually agreed to by its customers and will solely bear the responsibility for the recovery of any costs associated with construction and operation of the terminal. Accordingly, Rio Grande's proposal does not trigger NGA section 3(e)(4).⁵¹

⁴⁶ Final EIS at 5-1.

⁴⁷ *Id.*

⁴⁸ *Memorandum of Understanding Between the Department of Transportation and the Federal Energy Regulatory Commission Regarding Liquefied Natural Gas Transportation Facilities* (Aug. 31, 2018), <https://www.ferc.gov/legal/mou/2018/FERC-PHMSA-MOU.pdf>.

⁴⁹ 49 C.F.R. pt. 193, Subpart B (2019).

⁵⁰ See Commission staff's March 27, 2019 Memo filed in Docket No. CP16-454-000 (containing PHMSA's Letter of Determination).

⁵¹ 15 U.S.C. § 717b(e)(4) (governing orders for LNG terminal offering open

25. Accordingly, we find that, subject to the conditions imposed in this order, Rio Grande's proposal is not inconsistent with the public interest. Therefore, we will grant Rio Grande's application for authorization under section 3 of the NGA to site, construct, and operate its proposed LNG Terminal facilities.

B. Rio Bravo Pipeline Project (Docket No. CP16-455-000)

26. Because Rio Bravo's proposed pipeline facilities will be used to transport natural gas in interstate commerce subject to the Commission's jurisdiction, the construction and operation of the facilities are subject to the requirements of subsections (c) and (e) of section 7 of the NGA.⁵²

1. Certificate Policy Statement

27. The Certificate Policy Statement provides guidance for evaluating proposals to certificate new pipeline construction.⁵³ The Certificate Policy Statement establishes criteria for determining whether there is a need for a proposed project and whether the proposed project will serve the public interest. The Certificate Policy Statement explains that in deciding whether to authorize the construction of major new pipeline facilities, the Commission balances the public benefits against the potential adverse consequences. The Commission's goal is to give appropriate consideration to the enhancement of competitive transportation alternatives, the possibility of overbuilding, subsidization by existing customers, the applicant's responsibility for unsubscribed capacity, the avoidance of unnecessary disruptions of the environment, and the unneeded exercise of eminent domain in evaluating new pipeline construction.

28. Under this policy, the threshold requirement for applicants proposing new projects is that the applicant must be prepared to financially support the project without relying on subsidization from its existing customers. The next step is to determine whether the applicant has made efforts to eliminate or minimize any adverse effects the project might have on the applicant's existing customers, identify any adverse impacts the applicant's proposal might have on other existing pipelines in the market and their captive customers, and consider whether the applicant's proposal would result in the unnecessary exercise of eminent domain or have other adverse economic impacts on landowners and communities affected by the route of the new facilities. If residual adverse effects on

access service).

⁵² 15 U.S.C. § 717f.

⁵³ *Certification of New Interstate Natural Gas Pipeline Facilities*, 88 FERC ¶ 61,227 (1999), *clarified*, 90 FERC ¶ 61,128, *further clarified*, 92 FERC ¶ 61,094 (2000) (*Certificate Policy Statement*).

these interest groups are identified after efforts have been made to minimize them, the Commission will evaluate the project by balancing the evidence of public benefits to be achieved against the residual adverse effects. This is essentially an economic test. Only when the benefits outweigh the adverse effects on economic interests will the Commission proceed to consider the environmental analysis, where other interests are addressed.

29. As discussed above, the threshold requirement for pipelines proposing new projects is that the pipeline must be prepared to financially support the project without relying on subsidization from its existing customers. Rio Bravo is a new company with no existing shippers. Thus, there is no potential for subsidization on Rio Bravo's system or degradation of service to existing customers.

30. In addition, there is no evidence that the Rio Bravo Pipeline Project will adversely impact other pipelines in the region or their customers. The project is not intended to replace service on other pipelines. Moreover, no pipeline company or their captive customers have protested Rio Bravo's application.

31. We are also satisfied that Rio Bravo has taken appropriate steps to minimize adverse impacts on landowners and surrounding communities. The Rio Bravo Pipeline Project would impact approximately 1,997 acres of land during construction, and approximately 1,224 acres of land during operation.⁵⁴ Approximately 66 percent of the pipeline right-of-way would be collocated with or adjacent or parallel to existing pipeline, roadway, railway, or utility rights-of-way.⁵⁵ Accordingly, for the purposes of our consideration under the Certificate Policy Statement, we find that Rio Bravo has taken sufficient steps to minimize adverse impacts on landowners and surrounding communities.

32. Rio Bravo's proposed pipeline will enable it to transport natural gas to the Rio Grande LNG Terminal, where the gas will be liquefied for export. Rio Bravo executed a precedent agreement with RioGas Marketing, LLC for the full capacity of the pipeline for a 20-year term. Based on the benefits that the Rio Bravo Pipeline Project will provide by enabling the transport of domestically-sourced gas to Rio Grande's LNG Terminal where the gas will be liquefied for export, and the minimal adverse impacts on existing shippers, other pipelines and their customers, and landowners and surrounding communities, we find that the proposed project is consistent with the Certificate Policy Statement. Based on this finding and the environmental review, as discussed below, we further find that the public convenience and necessity require approval and certification of Rio Bravo's

⁵⁴ Final EIS at 2-25.

⁵⁵ *Id.*

proposal under section 7 of the NGA, subject to the environmental and other conditions discussed in this order.

2. Blanket Certificates

33. Rio Bravo requests a Part 284, Subpart G blanket certificate in order to provide open-access transportation services. Under a Part 284 blanket certificate, Rio Bravo would not need individual authorizations to provide transportation services to particular customers. Rio Bravo filed a *pro forma* Part 284 tariff to provide open-access transportation services. Because a Part 284 blanket certificate is required for Rio Bravo to participate in the Commission's open-access regulatory regime, we will grant Rio Bravo a Part 284 blanket certificate, subject to the conditions imposed herein, authorizing Rio Bravo to provide transportation service to customers requesting and qualifying for transportation service under its proposed FERC Gas Tariff, with pre-granted abandonment authorization

34. Rio Bravo also requests a Part 157, Subpart F blanket certificate. The Part 157 blanket certificate gives an interstate pipeline NGA section 7 authority to automatically, or after prior notice, perform a restricted number of routine activities related to the construction, acquisition, abandonment, replacement, and operation of existing pipeline facilities provided the activities comply with constraints on costs and environmental impacts.⁵⁶ Because the Commission has previously determined through a rulemaking that these blanket-certificate eligible activities are in the public convenience and necessity,⁵⁷ it is the Commission's practice to grant new natural gas companies a Part 157

⁵⁶ 18 C.F.R. § 157.203.

⁵⁷ *Revisions to the Blanket Certificate Regulations and Clarification Regarding Rates*, Order No. 686, FERC Stats. & Regs. ¶ 31,231, at P 9 (2006) (cross-referenced at 117 FERC ¶ 61,074), *order on reh'g*, Order No. 686-A, 119 FERC ¶ 61,303, *order on reh'g*, Order No. 686-B, 120 FERC ¶ 61,249 (2007).

blanket certificate if requested.⁵⁸ Accordingly, we will grant Rio Bravo a Part 157 blanket certificate, subject to the conditions imposed herein.

3. Rates

a. Initial Recourse Rates

35. Rio Bravo proposes initial maximum and minimum recourse reservation charges for firm service under Rate Schedule FTS, interruptible service under Rate Schedule ITS, and park and loan service under Rate Schedule PALS. Rio Bravo proposes a capital structure of 50 percent debt and 50 percent equity, a cost of debt of 6.85 percent, a return on equity of 14.00 percent and a depreciation rate of 2.50 percent.⁵⁹ Rio Bravo derived the proposed Rate Schedule FTS recourse rates for the pipeline system using an annual cost of service of \$390,835,526 and annual reservation billing determinants of 55,080,000 Dth.⁶⁰ Rio Bravo proposes: (1) an initial Rate Schedule FTS monthly reservation charge of \$7.0958 per Dth and an initial usage charge of \$0.000 per Dth; and (2) an initial Rate Schedule ITS and Rate Schedule PAL usage charge of \$0.2333 Dth per day, based on a 100 percent load factor equivalent of the Rate Schedule FTS. Section 4 of the General Terms and Conditions (GT&C) of Rio Bravo's *pro forma* tariff also provides for the Annual Charge Adjustment (ACA) as permitted by section 154.402 of the Commission's regulations.⁶¹

36. On March 16, 2017, Commission staff issued a data request asking for a clarification regarding Rio Bravo's treatment of Accumulated Deferred Income Taxes (ADIT). On April 3, 2017, Rio Bravo filed a response stating the ADIT treatment for the pipeline system facilities should have been treated as a liability, not as an asset. Rio Bravo filed a revised Exhibit P to reflect a revised cost of service and rates. Rio Bravo proposes a revised Rate Schedule FTS monthly reservation charge of \$6.9945 per Dth and revised Rate Schedule ITS and Rate Schedule PAL usage charge of \$0.2300 per Dth.

⁵⁸ *C.f. Rover Pipeline LLC*, 161 FERC ¶ 61,244, at P 13 (2017) (denying a request for a blanket certificate where the company's actions had eroded the Commission's confidence it would comply with all the requirements of the blanket certificate program, including the environmental requirements).

⁵⁹ Application, Exhibit P.

⁶⁰ Application, Exhibit P at 1.

⁶¹ Section 154.402 of the Commission's regulations, 18 C.F.R. § 154.402 (2019), states that a pipeline may not recover the Commission's annual charge through an ACA charge until it pays the annual charge and records it in Account No. 928.

37. On May 31, 2017, Commission staff issued a data request concerning the variable costs and associated accounts in Rio Bravo's proposed Operating and Maintenance (O&M) expenses. On June 13, 2017, Rio Bravo filed a response proposing to revise FERC Account No. 859 (Other expenses) from \$2,605,203 to \$204,455 for Pipeline System facilities. The difference of \$2,400,748 for Pipeline System facilities will be reclassified to FERC Account No. 853 (Compressor station labor and expenses). Rio Bravo also proposes to revise FERC Account No. 867 (Maintenance of other equipment) from \$3,214,786 to \$255,859 for Pipeline System facilities. The difference of \$2,958,927 for Pipeline System facilities will be reclassified to FERC Account No. 864 (Maintenance of compressor station equipment). Rio Bravo states it is not proposing any change to the overall O&M expenses proposed, but is reclassifying expenses by account. In addition, Rio Bravo provided a breakdown of O&M expenses by FERC account number and between labor and non-labor. Rio Bravo identified a total of \$2,623,093 in non-labor costs for FERC Account Nos. 853, 857 (Measuring and regulating station expenses), 864 and 865 (Maintenance of measuring and regulating station equipment). Consistent with the Commission's regulation requiring the use of straight fixed-variable rate design (SFV),⁶² these costs are classified as variable costs and should be recovered through a usage charge, not through the reservation charge.⁶³

38. In its January 26, 2018 response to a staff data request, Rio Bravo provided an adjusted cost of service and recalculated its originally proposed initial incremental recourse rates to reflect changes in the federal tax code, as per the Tax Cuts and Jobs Act of 2017,⁶⁴ which became effective January 1, 2018.⁶⁵ Rio Bravo's work papers show that the effect of the tax code change is a reduction in the estimated cost of service to \$346,601,154, resulting in a reduction in the initial maximum reservation charge to \$6.2927 per Dth under Rate Schedule FTS and a revised usage charge to \$0.2069 per Dth under Rate Schedules ITS and PALS. As Rio Bravo's January 26, 2018 revised calculation reflects the federal tax code that will be in effect when the project goes into service, the Commission will use the revised recourse rates for the purpose of

⁶² 18 C.F.R. § 284.7(e).

⁶³ *Columbia Gulf Transmission, LLC*, 152 FERC ¶ 61,214; *Dominion Transmission, Inc.*, 153 FERC ¶ 61,382 (2015).

⁶⁴ Pub. L. No. 115-97, 131 Stat. 2054 (Dec. 22, 2017).

⁶⁵ On August 30, 2018, in response to a staff data request, Rio Bravo states it is not a Master Limited Partnership and it will not incur the proposed federal income tax allowance in its own name. Rio Bravo also states all of its income and losses are consolidated on the federal income tax return of NextDecade Corporation, a C-Corp, which owns 100 percent of Rio Bravo.

establishing the initial recourse rates subject to Rio Bravo recalculating its initial recourse rates in its compliance filing consistent with an SFV rate design as discussed above.

39. Rio Bravo also proposes an initial fuel retainage percentage of 3.00 percent. Rio Bravo states the retainage percentage of 3.00 percent is based on the pipeline design, compression equipment design, and a high system flow rate. Furthermore, Rio Bravo states the retainage percentage will be revised annually after the in-service date of the phase one pipeline facilities pursuant to GT&C section 23, which includes a true-up adjustment that would reconcile actual fuel used versus fuel retained.⁶⁶ The Commission accepts Rio Bravo's proposed initial fuel retainage percentage of 3.00 percent.

b. Allowance for Funds Used During Construction

40. An allowance for funds used during construction (AFUDC) is a component part of the cost of constructing Rio Bravo's facilities. Gas Plant Instruction 3(17) prescribes a formula for determining the maximum amount of AFUDC that may be capitalized as a component of construction cost.⁶⁷ However, that formula is not applicable here, as it uses prior year book balances and cost rates of borrowed and other capital that either do not exist or could produce inappropriate results for initial construction projects of newly created entities such as Rio Bravo. Therefore, to ensure that the amounts of AFUDC are properly capitalized in this project, we will require Rio Bravo to capitalize the actual costs of borrowed and other funds for construction purposes not to exceed the amount of debt and equity AFUDC that would be capitalized based on the overall rate of return approved.⁶⁸

c. Three Year Filing Requirement

41. Consistent with Commission precedent, Rio Bravo is required to file a cost and revenue study no later than three months after its first three years of actual operation to

⁶⁶ Rio Bravo's April 3, 2017 Response to Data Request at 437.

⁶⁷ 18 C.F.R. pt. 201 (2019).

⁶⁸ See *Mill River Pipeline, L.L.C.*, 112 FERC ¶ 61,070 (2005).

justify its existing cost-based firm and interruptible recourse rates.⁶⁹ In this filing, the projected units of service should be no lower than those upon which Rio Bravo's approved initial rates are based. The filing must include a cost and revenue study in the form specified in section 154.313 of the Commission's regulations to update cost of service data.⁷⁰ Rio Bravo's cost and revenue study should be filed through the eTariff portal using a Type of Filing Code 580. In addition, Rio Bravo is advised to include as part of the eFiling description, a reference to Docket No. CP16-455-000 and the cost and revenue study.⁷¹ After reviewing the data, the Commission will determine whether to exercise its authority under NGA section 5 to investigate whether the rates remain just and reasonable. In the alternative, in lieu of this filing, Rio Bravo may make an NGA general section 4 rate filing to propose alternative rates to be effective no later than three years after the in-service date for its proposed facilities.

d. Negotiated Rates

42. Rio Bravo's *pro forma* tariff provides for Rio Bravo to charge negotiated rates for its proposed services. If Rio Bravo charges a negotiated rate, it must file either its negotiated rate agreement or tariff record setting forth the essential terms of agreements in accordance with the Commission's Alternative Rate Policy Statement⁷² and negotiated rate policies.⁷³ Rio Bravo must file the negotiated rate agreements or tariff records at least 30 days, but not more than 60 days, before the proposed effective date for such rates.⁷⁴

⁶⁹ See *Bison Pipeline, LLC*, 131 FERC ¶ 61,013, at P 29 (2010); *Ruby Pipeline, LLC*, 128 FERC ¶ 61,224, at P 57 (2009); *MarkWest Pioneer, L.L.C.*, 125 FERC ¶ 61,165, at P 34 (2008) (*MarkWest*).

⁷⁰ 18 C.F.R. § 154.313 (2019).

⁷¹ *Electronic Tariff Filings*, 130 FERC ¶ 61,047, at P 17 (2010).

⁷² *Alternatives to Traditional Cost-of-Service Ratemaking for Natural Gas Pipelines; Regulation of Negotiated Transportation Services of Natural Gas Pipelines*, 74 FERC ¶ 61,076; *clarification granted*, 74 FERC ¶ 61,194, *order on reh'g*, 75 FERC ¶ 61,024 (1996).

⁷³ *Natural Gas Pipelines Negotiated Rate Policies and Practices; Modification of Negotiated Rate Policy*, 104 FERC ¶ 61,134 (2003), *order on reh'g and clarification*, 114 FERC ¶ 61,042, *reh'g dismissed and clarification denied*, 114 FERC ¶ 61,304 (2006).

⁷⁴ Pipelines are required to file any service agreement containing non-conforming

4. Tariff

43. As part of its application, Rio Bravo filed a *pro forma* open-access tariff applicable to services provided on its proposed pipeline. We approve the *pro forma* tariff as generally consistent with Commission policies, with the following exceptions.

a. Nominations, Confirmations and Scheduling

44. Rio Bravo's proposed GT&C section 6.7.E states "Transporter shall have the right to curtail, interrupt, discontinue, or not schedule service in whole or in part on all or a portion of its system from time to time to *perform repair and maintenance on Transporter's system as necessary to maintain the operational capability of Transporter's system or to comply with applicable regulatory requirements.*"⁷⁵

45. Rio Bravo proposes that it may curtail scheduled service when "necessary to maintain the operational capability of Transporter's system or to comply with applicable regulatory requirements." The Commission has found that pipelines may only "curtail" service in an emergency situation or when an unexpected capacity loss occurs after the pipeline has scheduled service, and the pipeline is therefore unable to perform the service which it has scheduled.⁷⁶ The term "to perform repair and maintenance on Transporter's system as necessary to maintain operational capability of Transporter's system or to comply with applicable regulatory requirements" is not limited to an emergency situation or an unexpected loss of capacity, and the pipeline should take outages required for routine repair, maintenance, and operating changes into account when it is scheduling service, rather than curtailing service after it is scheduled. If an interruption of service is required for routine repair, maintenance or improvements, then the pipeline should not confirm shipper nominations to schedule service that it will not be able to provide for the period of the outage. For that reason, the Commission has held that pipelines should plan routine repair, maintenance, and improvements through the scheduling process and should not curtail confirmed scheduling nominations in order to perform routine repair,

provisions and to disclose and identify any transportation term or agreement in a precedent agreement that survives the execution of the service agreement. 18 C.F.R. § 154.112(b) (2019).

⁷⁵ Emphasis added.

⁷⁶ *CenterPoint Energy Gas Transmission Co., LLC*, 144 FERC ¶ 61,195, at P 75 (2013) (*CenterPoint*); *Ryckman Creek Resources, LLC*, 136 FERC ¶ 61,061, at P 68 (2011); *MarkWest*, 125 FERC ¶ 61,165 at P 52; *Portland Natural Gas Transmission Sys.*, 76 FERC ¶ 61,123, at 61,663 (1996).

maintenance, and improvements.⁷⁷ Therefore, Rio Bravo is required to revise GT&C section 6.7.E to comply with Commission policy.

b. Force Majeure

46. Rio Bravo's proposed GT&C section 6.14 includes a definition of *force majeure* and provides for reservation charge credits. In general, GT&C section 6.14 provides for full reservation charge credits when Rio Bravo cannot provide primary firm service during non-*force majeure* periods. GT&C section 6.14 provides for partial reservation charge credits during *force majeure* outages pursuant to the Safe Harbor Method, under which the pipeline provides no credits during the first ten days of the outage and full credits thereafter.

47. GT&C section 6.14.C includes in the definition of *force majeure* "the inability of Transporter's pipeline system to deliver gas...." The above phrase is overly broad and could include circumstances that are not both unexpected and outside the pipeline's control, which conflicts with established Commission policy.⁷⁸ In addition, Rio Bravo's proposed definition includes "civil disturbances of any kind" and "civil disturbances...." The two phrases are unnecessarily redundant; therefore, Rio Bravo is directed to delete one instance of the above phrase.

48. Rio Bravo's proposed definition of *force majeure* events also includes "acts of civil or military authority (including, but not limited to, courts, the government or any administrative or regulatory agencies)...." Rio Bravo's proposed tariff language conflicts with Commission policy because it can be interpreted to include regular, periodic maintenance activities required to comply with government actions as *force majeure* events. The Commission has clarified the basic distinction as to whether outages resulting from governmental actions are *force majeure* or non-*force majeure* events.⁷⁹

⁷⁷ *CenterPoint*, 144 FERC ¶ 61,195 at P 75.

⁷⁸ The Commission has defined *force majeure* outages as events that are both "unexpected and uncontrollable." *North Baja Pipeline, LLC v. FERC*, 483 F.3d 819, 823 (D.C. Cir. 2007), *aff'g*, *North Baja Pipeline, LLC*, 109 FERC ¶ 61,159 (2004), *order on reh'g*, 111 FERC ¶ 61,101 (2005). *See also*, e.g., *Kinder Morgan Louisiana Pipeline LLC*, 154 FERC ¶ 61,145, at P 29 (2016) (*Kinder Morgan*); *Algonquin Gas Transmission, LLC*, 153 FERC ¶ 61,038, at P 103 (2015) (*Algonquin*).

⁷⁹ *Kinder Morgan*, 154 FERC ¶ 61,145 at P 30; *TransColorado Gas Transmission Co., LLC*, 144 FERC ¶ 61,175, at PP 35-43 (2013); *Gulf South Pipeline Co., LP*, 141 FERC ¶ 61,224, at PP 28-47 (2012), *order on reh'g*, 144 FERC ¶ 61,215, at PP 31-34 (2013).

The Commission found that outages necessitated by compliance with government standards concerning the regular, periodic maintenance activities a pipeline must perform in the ordinary course of business to ensure the safe operation of the pipeline, including the PHMSA's integrity management regulations, are non-*force majeure* events requiring full reservation charge credits. Outages resulting from one-time, non-recurring government requirements, including special, one-time testing requirements after a pipeline failure, are *force majeure* events requiring only partial crediting.⁸⁰ Therefore, the Commission directs Rio Bravo to revise GT&C section 6.14.C to comply with Commission policy.

49. GT&C section 6.14.G states in part, "Shipper shall not be entitled to reservation charge credits as a result of any of the following: (a) gas supply, (b) markets, or (c) *transportation upstream of Transporter's pipeline system*."⁸¹ Commission policy provides that pipelines are not required to provide reservation charge credits if the failure to deliver is based on events due solely to that shipper,⁸² or due solely to the upstream or downstream pipeline and outside the control of the pipeline.⁸³ For example, the Commission has stated that, where the subject pipeline's failure to schedule or deliver gas was due solely to operating conditions on the upstream or downstream pipeline and the subject pipeline was ready to perform the requested service, no credits would be required.⁸⁴ However, if the subject pipeline as well as the other parties were unable to perform, then credits would be due to the shipper because the subject pipeline was not ready to perform regardless of the condition on the upstream or downstream pipeline.⁸⁵ Accordingly, when Rio Bravo files its compliance filing, it is directed to modify the referenced tariff language to comply with Commission policy.

c. Right of First Refusal

50. GT&C section 6.15.B describes how to exercise the Right of First Refusal. Section 6.15.B.1 provides that 12 months prior to the expiration of the primary term, Rio Bravo shall post the available capacity for bid on its website. In response to a data

⁸⁰ See *Algonquin, LLC*, 153 FERC ¶ 61,038 at P 104.

⁸¹ Emphasis added.

⁸² *Kinder Morgan*, 154 FERC ¶ 61,145 at P 20.

⁸³ *Rockies Express Pipeline LLC*, 142 FERC ¶ 61,075, at P 15 (2013).

⁸⁴ *Id.*

⁸⁵ *Id.*

request, Rio Bravo proposes to clarify its Right of First Refusal provision by adding the following to the end of GT&C section 6.15.B.1: “and provide the existing Shipper with the Right of First Refusal written notice of the posting.”⁸⁶ In addition, Rio Bravo proposes to add GT&C section 6.15.B.11 as follows:

“Whenever any Service Agreement subject to a Right of First Refusal at the end of its term is due to expire, Transporter shall implement the above process without requiring the existing Shipper to provide notice triggering the process.”

Rio Bravo is directed to make the proposed revision in its compliance filing.

d. Requests for Service

51. GT&C section 6.20.B.2(c) provides that Rio Bravo shall post on its website information regarding available capacity which includes “term (up to a maximum primary term of twenty (20) years with extensions from year to year thereafter unless canceled by their party by providing *six (6) Months prior notice* to the other partner).”⁸⁷ In section 7.1.4, the Rate Schedule FTS Service Agreement states it “shall continue year to year until terminated by Transporter or Shipper upon *written notice of the one year or the term of this Service Agreement, whichever is less*.”⁸⁸ In its data response, Rio Bravo proposes to revise the language in GT&C section 6.20.B.2(c) to reconcile the notice period with the notice period set forth in GT&C section 7.1.4.⁸⁹ Rio Bravo proposes to

⁸⁶ Rio Bravo’s June 13, 2017 Response to Data Request at 8.

⁸⁷ Emphasis added.

⁸⁸ Emphasis added.

⁸⁹ Rio Bravo’s June 13, 2017 Response to Data Request at 7.

replace the language previously proposed in GT&C section 6.20.B.2(c) with the following:

“term (up to a maximum primary term of twenty (20) years with extensions from year to year thereafter unless canceled by either party by providing written notice of one year or the term of the service agreement, whichever is less, to the other party); and date capacity becomes available.”

Rio Bravo is directed to make the proposed revision in its compliance filing.

e. Penalty Revenue Crediting

52. Rio Bravo states that its tariff provides for limited penalties for shippers and anticipates that the penalties recovered pursuant to section 5.1.4.B.2 of Rate Schedule FTS and section 5.3.5.A of Rate Schedule PAL will be minimal.⁹⁰ In its data response, Rio Bravo proposes to add GT&C section 6.34 to its *pro forma* tariff to provide crediting of penalty revenues, including the confiscated gas. Rio Bravo is directed to make the proposed revision in its compliance filing.

V. Environmental Analysis

53. To satisfy the requirements of the National Environmental Policy Act of 1969 (NEPA),⁹¹ Commission staff evaluated the potential environmental impacts of the proposed projects in an EIS. Several agencies participated as cooperating agencies in the preparation of the EIS: U.S. Army Corps of Engineers (COE), U.S. Coast Guard (Coast Guard), PHMSA, Federal Aviation Administration (FAA), U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (FWS), National Park Service, National Oceanic Atmospheric Administration’s National Marine Fisheries Service (NMFS), and DOE. Cooperating agencies have jurisdiction by law or special expertise with respect to resources potentially affected by the proposals and participate in the NEPA analysis.

54. On October 12, 2018, Commission staff issued a draft EIS addressing issues raised up to the point of publication. The Commission published notice of the draft EIS in the *Federal Register* on October 18, 2018, establishing a 45-day public comment period

⁹⁰ *Id.* at 4, 6.

⁹¹ 42 U.S.C. §§ 4321 *et seq.* (2012). *See also* the Commission’s NEPA-implementing regulations at Title 18 of the Code of Federal Regulations, Part 380.

ending on December 3, 2018.⁹² Commission staff held three public comment sessions between November 13 and November 15, 2018, to receive comments on the draft EIS. At the public comment sessions, 63 individuals provided verbal comments. We also received 861 written comment letters from federal and state agencies, Native American tribes, companies/organizations, and individuals in response to the draft EIS. The transcripts of the public comment sessions and all written comments on the draft EIS are part of the public record for the projects.⁹³

55. On April 26, 2019, Commission staff issued the final EIS for the projects, which addresses all substantive environmental comments received on the draft EIS.⁹⁴ The final EIS addresses geology; soils; water use and quality; wetlands; vegetation; wildlife, aquatic resources, and essential fish habitat; threatened, endangered, and other special-status species; land use, recreation, and visual resources; socioeconomics; cultural resources; air quality and noise; reliability and safety; cumulative impacts; and alternatives.

56. The final EIS concludes that construction and operation of the Rio Grande LNG Terminal and the Rio Bravo Pipeline, collectively referred to as the Rio Grande LNG Project, would result in adverse environmental impacts, but that these impacts would be reduced to less-than-significant levels with the implementation of applicants' proposed, and Commission staff's recommended, avoidance, minimization, and mitigation measures, which are included as conditions in the appendix to this order. The Rio Grande LNG Project, combined with other projects in the geographic scope, including the Texas LNG and Annova LNG Projects,⁹⁵ would result in significant cumulative impacts on surface water quality in the Brownsville Ship Channel during operational vessel transits; on the federally-listed ocelot and jaguarundi from habitat loss and increased potential for vehicular strikes during construction; on the federally listed northern

⁹² 83 Fed. Reg. 52,828.

⁹³ The transcripts for the public comment sessions in Port Isabel, Texas; Raymondville, Texas; and Kingsville Texas were filed in the record on January 2, 2019. *See also* Appendix R to the final EIS reproducing and responding to comments on the draft EIS.

⁹⁴ Final EIS at 1-14 – 1-16 and Appendix R.

⁹⁵ Concurrently with this order, the Commission is also issuing orders approving the construction and operation of the Texas LNG and Annova LNG Projects. *See Texas LNG Brownsville LLC*, 169 FERC ¶ 61,130 (2019); *Annova LNG Common Infrastructure, LLC*, 169 FERC ¶ 61,132 (2019).

aplomado falcon from habitat loss; on visual resources due to the presence of new facilities; and on nearby NSAs during nighttime construction.

57. The Commission received comments on the final EIS from seven individuals, one state agency, one local municipality, and a group of environmental and local resident organizations.⁹⁶ Those comments and major environmental issues addressed in the final EIS are discussed below.

A. Scope of the Environmental Review

58. Citing *Sierra Club v. FERC*,⁹⁷ Sierra Club contends that the Commission's approval of the siting, construction, and operation of the Rio Grande LNG Project and DOE's authorization of LNG exports from the project are "connected actions," the impacts of which must be fully analyzed in the Commission's EIS.⁹⁸ Specifically, Sierra Club asserts that the Commission, as the lead agency responsible for reviewing the environmental effects of the applicants' proposals under NEPA, must ensure that the review consists of impacts of all related approvals, including the indirect effects of both the construction and operation of the LNG Terminal facilities as well as the export of LNG from those facilities.⁹⁹ Asserting that the export of LNG will increase gas production and use of exported natural gas in overseas markets, Sierra Club argues that effects are reasonably foreseeable effects of the Commission's and DOE's authorizations and should be analyzed in the EIS.¹⁰⁰

59. Because DOE authorizes commodity exports of LNG, the Commission's authorization of the siting, construction, and operation of LNG export facilities is not the

⁹⁶ On May 30, 2019, Defenders of Wildlife, Save RGV from LNG, Shrimpers and Fisherman of the RGV, Sierra Club, and Vecinos (collectively, Defenders of Wildlife) jointly filed comments, alleging that the final EIS must be supplemented to account for impacts of a future expansion the LNG Terminal's export capacity. The same group of organizations filed a renewed request for a supplemental EIS on June 17, 2019.

⁹⁷ *Freeport*, 827 F.3d at 47-49.

⁹⁸ Sierra Club's December 3, 2018 Comments on draft EIS at 84-87 (Comments on draft EIS filed on behalf of Save RGV, Shrimpers and Fisherman of the RGV, and Vecinos).

⁹⁹ *Id.* at 87-94.

¹⁰⁰ *Id.*

legally relevant cause of increased natural gas production.¹⁰¹ Nor is the Commission's construction authorization the legally relevant cause of increased use of exported natural gas overseas. Accordingly, the Commission's EIS appropriately did not evaluate the LNG Terminal's impacts on gas production or use of exported gas overseas.

60. Sierra Club again distorts the concept of “connected actions.” The requirement that an agency consider connected actions in a single environmental document is to “prevent agencies from dividing one project into multiple individual actions” with less significant environmental effects¹⁰² and “to prevent the government from ‘segmenting’ its *own* ‘federal actions into separate projects and thereby failing to address the true scope and impact of the activities that should be under consideration.’”¹⁰³

61. Here, the proposals before the Commission are requests to site, construct, and operate the Rio Grande LNG Terminal and the Rio Bravo Pipeline Project. These projects were considered together in a single environmental analysis. The export of natural gas from the Rio Grande LNG Terminal, by contrast, was not a proposal before the Commission because, as the *Freeport* court noted, “[DOE], not the Commission, has sole authority to license the export of any natural gas going through the [Rio Grande] facilities.”¹⁰⁴

62. Further, in arguing that the NGA “recognizes the connected nature” of DOE's export authorization and the Commission's jurisdiction over export facilities because the Act calls for the Commission to serve as “lead agency” for a coordinated NEPA review, Sierra Club erroneously conflates the Council on Environmental Quality (CEQ)

¹⁰¹ *Sabine Pass*, 827 F.3d at 68.

¹⁰² *Myersville Citizens for a Rural Community, Inc. v. FERC*, 783 F.3d 1301, 1326 (D.C. Cir. 2015) (approving the Commission's determination that, although a Dominion-owned pipeline project's excess capacity may be used to move gas to the Cove Point terminal for export, the projects are “unrelated” for NEPA purposes); *see also City of W. Chicago, Ill. v. U.S. Nuclear Regulatory Comm'n*, 701 F.2d 632, 650 (7th Cir. 1983) (citing *City of Rochester v. United States Postal Serv.*, 541 F.2d 967, 972 (2d Cir. 1976)).

¹⁰³ *Sierra Club v. U.S. Army Corps of Eng'rs*, 803 F.3d 31, 49-50 (D.C. Cir. 2015) (emphasis added) (quoting *Delaware Riverkeeper Network v. FERC*, 753 F.3d 1304, 1313 (D.C. Cir. 2014)).

¹⁰⁴ *See Freeport*, 827 F.3d at 47.

regulations on “connected actions”¹⁰⁵ and “lead agencies.”¹⁰⁶ In the Energy Policy Act of 2005, Congress designated the Commission as “the lead agency for the purposes of coordinating all applicable Federal authorizations and for the purposes of complying with the National Environmental Policy Act” for LNG-related authorizations required under section 3 of the NGA.¹⁰⁷ While the lead agency supervises the preparation of the environmental document where more than one federal agency is involved, the “lead agency” designation does not alter the scope of the project before the Commission either for approval or environmental review.¹⁰⁸ Nor does the lead agency role make the Commission responsible for ensuring a cooperating federal agency’s compliance with its own NEPA responsibilities.¹⁰⁹ Thus, the Commission did not impermissibly segment its environmental review.

63. In any event, Sierra Club’s argument ignores the fact that DOE has authorized Rio Grande to export approximately 26.1 MTPA of LNG to free trade nations.¹¹⁰ This volume is similar to Rio Grande LNG Terminal’s nameplate capacity of 27 MTPA of LNG. Accordingly, the criteria for determining whether the Commission’s proceeding is a connected action with the DOE’s pending proceeding for additional export authorization to non-free trade countries cannot be met.¹¹¹ Specifically, the liquefaction

¹⁰⁵ 40 C.F.R. § 1508.25(a)(1) (2019).

¹⁰⁶ *Id.* § 1501.5.

¹⁰⁷ See 15 U.S.C. § 717n(b)(1); see also *Columbia Riverkeeper v. U.S. Coast Guard*, 761 F.3d 1084, 1087-88 (9th Cir. 2014) (discussing FERC’s role as lead agency under the Energy Policy Act of 2005).

¹⁰⁸ See 40 C.F.R. § 1501.5(a) (detailing a lead agency’s role).

¹⁰⁹ See *id.* § 1503.3 (cooperating agency required to specify what additional information it needs to fulfill its own environmental review); see also *id.* § 1506.3 (allowing a cooperating agency to adopt the lead agency’s environmental document to fulfill its own NEPA responsibilities if independently satisfied that the environmental document adheres to the cooperating agency’s comments and recommendations).

¹¹⁰ *Supra* P 21.

¹¹¹ See 40 C.F.R. § 1508.25(a)(1)(i)-(iii) (defining “connected actions”).

project can proceed without obtaining export authorization to non-free trade countries and so does not depend on obtaining export authorization to non-free trade countries.¹¹²

B. Geology

64. Construction of the LNG Terminal would permanently modify topographic contours present at the site.¹¹³ Results of Rio Grande's geotechnical investigations concluded that a shallow foundation system would adequately support lightly loaded structures at the LNG Terminal site and aboveground facilities; however, at heavily loaded and settlement-sensitive structures, deep foundations consisting of piles will be necessary.¹¹⁴ No mineral resources would be affected by the LNG Terminal.

65. Rio Grande performed a fault and seismic analysis for the LNG Terminal. Based on staff's review of this analysis, and due to the absence of a major fault in proximity to the site and lower ground motions, the final EIS concludes that the seismic risk to the site is low.¹¹⁵ The potential for a seismic event large enough to cause soil liquefaction in the project area is also low.¹¹⁶ Moreover, the LNG Terminal facilities would be constructed on either a site improved with deep soil mixing or in some cases deep foundations, mitigating any potential impacts of soil liquefaction.¹¹⁷ If soil improvement becomes necessary to counteract soil liquefaction, Rio Grande would use ground improvement techniques (e.g., densification, cementitious strengthening) or would remove and replace existing soils with non-liquefiable material.¹¹⁸ Further, the final EIS concludes that the LNG Terminal facilities would be able to withstand storm surge without damage during a 500-year storm event.¹¹⁹

66. The potential for geologic hazards (e.g., earthquakes, soil liquefaction, or landslides) to significantly affect construction or operation of the Rio Bravo Pipeline is

¹¹² *Id.*

¹¹³ Final EIS at 4-421.

¹¹⁴ *Id.* at 4-9.

¹¹⁵ *Id.* at 4-344.

¹¹⁶ *Id.* at 4-345.

¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ *Id.* at 4-350.

low.¹²⁰ To mitigate potential flood hazard, critical infrastructure and potential contamination sources would be elevated, and Compressor Station 3 would be constructed within a flood protection levee.¹²¹ Due to the location of facilities within active oil and gas fields and near water supply wells for groundwater withdrawals from the Gulf Coast Aquifer, the final EIS found that subsidence could occur in the project vicinity, but noted that water withdrawal and associated subsidence along the pipeline route would be minimal.¹²² The permanent alteration of geologic conditions at the aboveground facilities would be the pipeline system's primary impact on geologic resources.¹²³ Rio Bravo must submit the results of any outstanding geotechnical investigations for certain aboveground facilities and waterbodies to be crossed by horizontal directional drill, as well as any related mitigation measures, prior to construction.¹²⁴ Blasting is not anticipated during construction of the pipeline facilities or the LNG Terminal.¹²⁵ Therefore, the final EIS concludes that the Rio Grande LNG Project's impacts on geologic resources would be adequately minimized and not significant, and that the potential impacts on the LNG Terminal and pipeline facilities from geological hazards would be minimal.

C. Soils

67. During construction of the projects, clearing, grading, excavation, backfilling, and relocating construction equipment would affect soil resources.¹²⁶ The applicants would apply their project-specific *Upland Erosion Control, Revegetation and Maintenance Plan* (project-specific Plan) and *Wetland and Waterbody Construction and Mitigation*

¹²⁰ *Id.* at 5-1.

¹²¹ *Id.*

¹²² *Id.*

¹²³ *Id.* at 5-2.

¹²⁴ *Id.*

¹²⁵ *Id.* at 4-8.

¹²⁶ *Id.* at 5-2.

Procedures (project-specific Procedures),¹²⁷ including installing, maintaining, and monitoring temporary erosion and sedimentation controls to prevent sediment flow from construction areas into adjacent, undisturbed areas.¹²⁸

68. To prepare the LNG Terminal site, Rio Grande would add material (e.g., cement or lime) to stabilize soils, deposit fill to increase ground elevation, and install aggregate material to provide a level work surface, resulting in permanent alteration of the spoils and increased erosion potential until the LNG Terminal is constructed and the exposed soils remaining are stabilized and revegetated.¹²⁹ Dredging at the LNG Terminal site would be conducted in accordance with permits issued by the COE, and Rio Grande will reallocate dredged materials in accordance with its Dredged Material Management Plan, which will be finalized with the Brownsville Navigational District and COE.¹³⁰ To minimize shoreline erosion, Rio Grande would stabilize the LNG Terminal waterfront along the Brownsville Ship Channel from the material offloading facility to the berths and turning basin, and would maintain the integrity of the shoreline throughout the operational life of the terminal.¹³¹

69. Although construction of the Rio Bravo Pipeline would impact approximately 880 acres of soils designated as prime farmland, only 97 acres of prime farmland would be permanently impacted by aboveground facilities and access roads.¹³² Thus, the majority of this land would be restored to pre-construction conditions in accordance with the project-specific Plan and Procedures. In accordance with its project-specific Plan, Rio Bravo would decompact soils in severely compacted areas on agricultural land by tilling.¹³³ Further, Rio Grande and Rio Bravo would also develop and implement *Spill*

¹²⁷ The applicants' Plan and Procedures are based on the 2013 FERC Plan and Procedures, which are a set of baseline construction and mitigation measures developed to minimize the potential environmental impacts of construction on upland areas, wetlands, and waterbodies. See Federal Energy Regulatory Commission, *Environmental Guidelines* (May 2013), <https://www.ferc.gov/industries/gas/enviro/guidelines.asp>.

¹²⁸ *Id.*

¹²⁹ Final EIS at 4-13.

¹³⁰ *Id.* at 5-2 – 5-3.

¹³¹ *Id.* at 4-14, 5-3.

¹³² *Id.* at 4-10.

¹³³ *Id.* at 5-2.

Prevention, Control, and Countermeasures (SPCC) Plans to minimize soil impacts during construction and operation by controlling sediment and restoring workspaces. Commission staff recommends and we require in Environmental Condition 18 that the applicants file copies of the final SPCC Plans with the Commission prior to construction. Accordingly, the final EIS determines that projects' construction and operational impacts on soils would be permanent, but minor.

D. Water Resources

70. The Rio Grande LNG Project is within the Coastal Lowlands Aquifer System, but it is not located within the portion classified as a major aquifer.¹³⁴ Because the groundwater in Cameron County is generally not potable due to its high salinity, drinking water in the vicinity of the LNG Terminal site is primarily surface water from the Rio Grande River and associated reservoirs.¹³⁵ The LNG Terminal site is not located within 0.25 mile of public or private water supply wells, near wellhead protection areas, within a state designated Groundwater Conservation District, or within an area with documented groundwater contamination.¹³⁶ No new groundwater wells would be required for construction and operation of the LNG Terminal as Rio Grande intends to use municipal water supply to meet its construction and operational water needs.¹³⁷

71. The Rio Bravo Pipeline would be located within 200 feet of 13 water supply wells.¹³⁸ For wells within 150 feet of project workspaces, Rio Bravo would offer to perform pre- and post-construction monitoring for changes in well water quality and yield.¹³⁹ To minimize the potential for groundwater contamination, Rio Bravo would prohibit refueling within 200 feet of a water supply well.¹⁴⁰ While construction of the projects could result in temporary impacts on groundwater quality and recharge, the

¹³⁴ *Id.* at 4-24. The Coastal Lowland Aquifer System are the aquifers proximal to the Gulf of Mexico from the Texas-Mexico border through the panhandle of Florida. In Texas, the Coastal Lowlands Aquifer System is referred to as the Gulf Coast Aquifer.

¹³⁵ *Id.*

¹³⁶ *See id.*

¹³⁷ *Id.* at 4-27.

¹³⁸ *Id.* at 4-28.

¹³⁹ *Id.*

¹⁴⁰ *Id.*

applicants would reduce the potential for groundwater impacts by implementing their project-specific Plan and Procedures, SPCC Plans, and *Stormwater Pollution Prevention Plan* (Stormwater Plan).¹⁴¹

72. Surface water impacts from construction and operation of the Rio Grande LNG Terminal could occur during dredging and placement of dredged materials, vessel traffic, site construction and stormwater runoff, hydrostatic testing and use of the firewater system, and spills or leaks of hazardous materials.¹⁴² With implementation of Rio Grande's proposed mitigation measures for each of these activities, the final EIS concludes that impacts on surface waters from construction and operation of the Rio Grande LNG Terminal would be temporary and minor. Permanent impacts on surface water, although not significant, would occur where open water would be converted to industrial/commercial land within the LNG Terminal site, and where dredging would permanently modify the profile of the shipping channel and would convert existing mudflats to open water.¹⁴³

73. The Rio Bravo Pipeline would cross 63 waterbodies, including 21 perennial streams, 19 intermittent streams, 10 ephemeral streams, and 13 ponds or reservoirs, by various crossing methods, including open cut, conventional bore, and horizontal directional drill.¹⁴⁴ Water for hydrostatic testing of the pipeline system would be withdrawn from three waterbodies crossed by the pipelines (Los Olmos Creek, Arroyo Colorado, and Resaca De Los Cuates), and would be re-used across different pipe segments to decrease the total volume of water required.¹⁴⁵ To minimize potential impacts on surface water, Rio Bravo would implement its project-specific Procedures, employ trenchless crossing methods for 26 of 34 flowing waterbodies, and, following construction of each waterbody crossing, would restore waterbody contours to pre-construction conditions and revegetate riparian areas.¹⁴⁶

74. With implementation of the applicants' project-specific Plan and Procedures; Stormwater Plan; SPCC Plans; adherence to applicable permits; and staff

¹⁴¹ *Id.* at 5-3.

¹⁴² *Id.* at 4-37.

¹⁴³ *Id.* at 4-55.

¹⁴⁴ *Id.* at ES-5.

¹⁴⁵ *Id.* at 5-4.

¹⁴⁶ *Id.* at ES-6.

recommendations, the final EIS concludes that the projects' impacts on groundwater and surface water would be adequately minimized.¹⁴⁷

E. Wetlands

75. Construction and operation of the Rio Grande LNG Terminal would result in the permanent loss of approximately 182 acres of wetlands and special aquatic sites (e.g., mangroves and mudflats).¹⁴⁸ The construction and operation of the Rio Bravo Pipeline Project would temporarily affect approximately 145 acres of wetlands, of which approximately 107 acres would be maintained in an herbaceous state within the pipeline right-of-way, while 38 acres would be restored to pre-construction conditions.¹⁴⁹ Section VI.A.6 of the Commission's Procedures specify that aboveground facilities, with few exceptions, should be located outside of wetlands. However, the final EIS finds Rio Grande's proposal to site the LNG Terminal, including Compressor Station 3, in wetlands to be the most environmentally preferable and practicable alternative.¹⁵⁰ Prior to construction, the COE must approve the proposed siting of the LNG Terminal in wetlands.¹⁵¹ Accordingly, Rio Grande is developing for COE approval a plan to mitigate wetland impacts.¹⁵² Construction of the LNG Terminal would not start until Rio Grande's wetland mitigation plans are finalized and the COE has issued its permits under sections 404 and 10 of the Clean Water Act (CWA).¹⁵³ In accordance with its Procedures, Rio Bravo would consult with the COE to develop a wetland restoration plan.¹⁵⁴ After construction in wetlands, the applicants would implement their project-specific Procedures to control erosion and restore the pre-construction grade and hydrology.¹⁵⁵

¹⁴⁷ *Id.* at 5-5.

¹⁴⁸ *Id.* at 4-61.

¹⁴⁹ *Id.* at 4-60.

¹⁵⁰ *Id.* at 5-6.

¹⁵¹ *Id.*

¹⁵² *Id.* at 5-5.

¹⁵³ *Id.* at ES-6.

¹⁵⁴ *Id.* at 5-5.

¹⁵⁵ *Id.*

76. With adherence to the applicants' project-specific Procedures, applicable permits, and staff recommendations, the final EIS concludes that impacts on wetlands would be reduced, with the majority of adverse permanent impacts occurring at the LNG Terminal site.¹⁵⁶ In addition, the final EIS anticipates that any permit issued by the COE would require wetland mitigation to offset the LNG Terminal's adverse permanent impacts on waters of the United States, thereby reducing such impacts to less-than-significant levels.¹⁵⁷

F. Vegetation

77. Construction of the Rio Grande LNG Terminal would result in the clearing and permanent loss of approximately 563 acres of vegetation.¹⁵⁸ Impacts on wetland vegetation would be mitigated as required by the COE pursuant to section 404 of the CWA.¹⁵⁹ Rio Grande conducted noxious and invasive weed surveys at the LNG Terminal site; no state-listed weeds were identified.¹⁶⁰ Although the construction and operation of the LNG Terminal would result in permanent impacts on vegetation within the facility footprint, the final EIS concludes that these impacts would be minor.¹⁶¹

78. Construction of the Rio Bravo Pipeline Project would result in the clearing of approximately 1,981 acres of vegetation.¹⁶² Following construction, approximately 1,213 acres of vegetation would be located within the pipeline's permanent right-of-way and subject to routine maintenance.¹⁶³ The construction and operation of the pipeline's aboveground facilities would permanently convert approximately 93 acres of vegetation to a developed state.¹⁶⁴ Additional noxious weed surveys along the pipeline route would be conducted prior to construction, and Rio Bravo would implement its *Noxious and*

¹⁵⁶ *Id.* at 5-6.

¹⁵⁷ *Id.* at 4-69, 5-7.

¹⁵⁸ *Id.* at 5-6.

¹⁵⁹ 33 U.S.C. § 1344 (2012).

¹⁶⁰ Final EIS at 5-7.

¹⁶¹ *Id.* at 4-78.

¹⁶² *Id.*

¹⁶³ *See id.* at 5-6.

¹⁶⁴ *Id.* at 4-75.

Invasive Plant Management Plan to control the potential spread of weeds.¹⁶⁵ Although vegetated habitat would be permanently lost within the footprint of the aboveground facilities or would be maintained as part of the permanent right-of-way, the final EIS concludes that the Rio Bravo Pipeline's impacts on vegetation would generally be temporary or short-term.¹⁶⁶

G. Wildlife and Aquatic Resources

79. Construction of the Rio Grande LNG Terminal would permanently convert the vegetated acreage within the footprint of the facility, as well as 174.8 acres of open water onsite and in the proposed dredging areas, to an industrial state, resulting in some wildlife displacement, stress, and mortality.¹⁶⁷ To minimize the potential for wildlife mortality during site clearing, Rio Grande would conduct pre-construction surveys and hazing to flush wildlife from the site. Although LNG Terminal construction and operation would result in increased human activity, lighting, and noise, these impacts are not expected to be significant due to the site's close proximity to existing transportation thoroughfares (i.e., State Highway 48 and the Brownsville Ship Channel), as well as the requirement that Rio Grande develop nighttime lighting plans to minimize impacts on wildlife.¹⁶⁸ The direct loss of habitat and the indirect effects associated with displacement resulting from construction and operation of the LNG Terminal would result in minor to moderate permanent impacts on local wildlife. Construction of the Rio Bravo Pipeline would affect approximately 1,999 acres of wildlife habitat, resulting in wildlife displacement, stress, and direct mortality during construction.¹⁶⁹ However, because these impacts on wildlife would be temporally limited to periods of active construction and, with the exception of the aboveground facilities and permanent right-of-way, habitat would be restored to pre-construction conditions, the final EIS concluded these impacts would not be significant.

¹⁶⁵ *Id.* at 5-7.

¹⁶⁶ *Id.* at 4-84.

¹⁶⁷ *Id.* at 5-7.

¹⁶⁸ *See id.* Environmental Condition 22 requires Rio Grande to consult with the Texas Parks and Wildlife Department and the FWS to finalize nighttime lighting plans to minimize impacts on wildlife to the greatest extent practical.

¹⁶⁹ *Id.* at 5-8.

80. The proposed projects are within the migratory bird Central Flyway, which spans the central portion of North American into Central America.¹⁷⁰ To avoid or minimize impacts on migratory birds, Rio Grande would implement measures from its Migratory Bird Conservation Plan during construction of the LNG Terminal.¹⁷¹ During construction of the pipeline system, Rio Bravo would also implement measures from the Migratory Bird Conservation Plan if vegetation clearing during March 1 and August 31 becomes necessary.¹⁷² Environmental Condition 23 requires the applicants to consult with FWS and the Texas Parks and Wildlife Department prior to filing a final Migratory Bird Conservation Plan with the Commission. Although the increase in nighttime lighting associated with construction and operation of the projects would permanently impact resident or migratory birds, the final EIS concludes that these impacts would be minor.¹⁷³

81. Construction of the Rio Grande LNG Terminal and the Rio Bravo Pipeline would have minor impacts on aquatic resources due to the projects' water quality impacts, noise impacts, and mortality of some immobile individuals during dredging and waterbody crossings during pipeline installation. Construction of the LNG Terminal site would convert open water to industrial land and existing wetlands to open water via dredging, resulting in permanent impacts on aquatic habitat. To minimize impacts on aquatic resources caused by increased turbidity and suspended solids, Rio Grande would adhere to the COE's permit requirements and would use equipment designed to meet Texas water quality standards. In addition, Rio Grande has committed to conducting the majority of pile-driving from land to minimize impacts on aquatic resources, and plans to use a vibratory hammer, rather than impact hammers, for the sheet piling at the material offloading facility to the greatest extent possible.¹⁷⁴ LNG Terminal operations would have minor impacts on aquatic resources due to maintenance dredging and increased vessel traffic. Regarding the pipeline, Rio Bravo must ensure that all waterbodies with

¹⁷⁰ *Id.* South Texas acts as a funnel for migratory birds as they try to avoid flying too far east (into open Gulf waters) or west (into desert habitat).

¹⁷¹ *Id.*

¹⁷² In accordance with FWS's recommendations, Rio Bravo plans to avoid vegetative clearing and maintenance between March 1 and August 31. *Id.* at 4-95.

¹⁷³ *Id.* at 5-8.

¹⁷⁴ *Id.* at 4-109. Impact hammers typically result in higher sound levels and may be more injurious to aquatic resources.

perceptible flow be crossed between November 1 and January 31.¹⁷⁵ By implementing the applicants' proposed mitigation measures, the final EIS concludes that the projects would have temporary and minor impacts on fisheries and aquatic resources.

82. Portions of the Brownsville Ship Channel, the channel to San Martin Lake, the Bahia Grande Channel, and the water column at potential dredged material disposal sites have been designated as Essential Fish Habitat (EFH).¹⁷⁶ Project-related dredging and dredged material placement; pile-driving; vessel traffic; site modification and stormwater runoff; water use; facility lighting; and hazardous material spills have the potential to affect EFH and managed species. The final EIS concludes that the potential for these impacts would be minimized by the applicants' implementation of their project-specific Plan and Procedures, SPCC Plans, Stormwater Plan, and mitigation measures.¹⁷⁷ Although project construction activities would result in the alteration of habitat and the mortality or displacement of individuals, the impacts on EFH and the species and life stages that use EFH would be temporary and minor.¹⁷⁸ Consultation under the Magnuson-Stevens Fishery Conservation and Management Act¹⁷⁹ is complete.¹⁸⁰ Given the temporary, minor impacts on EFH, NMFS did not provide EFH conservation recommendations for the projects.¹⁸¹

H. Threatened, Endangered Species, and Other Special Status Species

83. The final EIS identifies 25 species that are federally listed as threatened or endangered (or are identified as proposed, candidates, or under review for federal listing) that may occur within the counties affected by the projects or just offshore along LNG vessel transit routes.¹⁸² Within these counties, or just offshore, critical habitat has been

¹⁷⁵ *Id.* at 5-9.

¹⁷⁶ *Id.* at ES-7.

¹⁷⁷ *See id.* at 4-125 – 4-126.

¹⁷⁸ *Id.* at ES-7.

¹⁷⁹ 16 U.S.C. §§ 180 *et seq.* (2018).

¹⁸⁰ *See* NMFS's February 22, 2019 Letter (concurring with staff's EFH assessment).

¹⁸¹ *Id.*

¹⁸² Final EIS at 4-128 – 4-132 (Table 4.7-1).

designated for two species (the piping plover and the loggerhead sea turtle).¹⁸³ As required by section 7 of the Endangered Species Act of 1973, we requested that the FWS and NMFS accept the information provided in the draft EIS as the biological assessment for the Rio Grande LNG Project.

84. For terrestrial species under FWS's purview, Commission staff determined that the projects are *not likely to adversely affect* nine species, are *not likely to adversely modify* the piping plover's critical habitat, would have *no effect* on two species or on sea turtles while on nesting beaches, and are unlikely to result in a trend towards federal listing for two species.¹⁸⁴ Commission staff also determined that the projects are *likely to adversely affect* two federally endangered cat species under FWS jurisdiction – the ocelot and the jaguarundi – based on direct and indirect habitat impacts.¹⁸⁵ Ocelots could face a heightened risk of injury or mortality during pre-construction habitat clearing, and may be indirectly affected by habitat disturbance and fragmentation, increased human presence, and increased noise during project construction and operation.¹⁸⁶ Although there has not been a confirmed sighting of the species since 1986, the jaguarundi, if present in the project area, would experience impacts similar to the ocelot.¹⁸⁷ By letter filed December 27, 2018, FWS provided preliminary comments on staff's biological assessment and requested additional information on ocelot habitat loss. FWS filed a second letter on July 27, 2019, reporting that the applicants had provided the requested information and had committed to pursuing voluntary conservation measures to minimize the projects' direct impacts on cat habitat. On August 21, 2019, FWS informed the Commission that it had received all the information required to initiate formal consultation for the ocelot and jaguarundi.¹⁸⁸

85. On October 2, 2019, FWS filed a Final Biological Opinion, concluding that the Rio Grande LNG Project is not likely to jeopardize the continued existence of the ocelot and jaguarundi. FWS's Biological Opinion authorizes the incidental take of one endangered cat (ocelot or jaguarundi) over the life of the projects (i.e., 30 years). In order to minimize the impact of incidental take on the ocelot and jaguarundi, the Biological Opinion includes four reasonable and prudent measures requiring Rio Grande and Rio

¹⁸³ *Id.* at 4-127.

¹⁸⁴ *Id.* at 5-9.

¹⁸⁵ *Id.* at 5-10.

¹⁸⁶ *Id.* at 4-156.

¹⁸⁷ *Id.* at 4-160.

¹⁸⁸ FWS's August 21, 2019 Letter at 1.

Bravo to: (1) implement the voluntary conservation measures proposed in their biological opinion; (2) notify FWS of any unauthorized take or if any endangered cat is found dead or injured during project implementation; (3) provide information and training on ocelot habitat requirements and avoidance measures to all project employees and contractors; and (4) monitor take of the ocelot and jaguarundi and provide periodic monitoring reports to FWS. In addition, the Biological Opinion contains six mandatory terms and conditions, which implement the reasonable and prudent measures described above and outline the applicants' reporting and monitoring requirements.

86. The south Texas ambrosia was inadvertently omitted from the Final Biological Opinion, but FWS concurred with Commission staff's *not likely to adversely affect* determination.¹⁸⁹ Accordingly, Endangered Species Act consultation with FWS is complete.

87. For marine species under NMFS's purview, Commission staff determined that the projects are *not likely adversely affect* ten species, and that the projects would have *no effect* on the critical habitat for the loggerhead sea turtle. By letter dated August 8, 2019, NMFS agreed, concluding that the Rio Grande LNG Project is *not likely to adversely affect* listed species or critical habitat under NMFS's purview.¹⁹⁰ Accordingly, Endangered Species Act consultation with NMFS is complete.

88. Because consultation under section 7 of the Endangered Species Act is complete, the final EIS's recommended Environmental Condition 29 is no longer required.

89. Although the final EIS found that dolphins, federally protected under the Marine Mammal Protection Act,¹⁹¹ may be affected by noise produced by in-water pile-driving at the LNG Terminal site, Rio Grande has minimized this potential by restricting in-water pile-driving to four conventional piles and one sheet pile.¹⁹² Environmental Condition 30 requires Rio Grande to consult with NMFS to identify mitigation measures to avoid or minimize take of bottlenose dolphins during in-water pile-driving.

¹⁸⁹ Commission staff's October 8, 2019 Memo (containing email correspondence from FWS).

¹⁹⁰ NMFS's August 22, 2019 Letter at 16 (responding to Commission staff's October 25, 2018 letter requesting consultation pursuant to section 7 of the Endangered Species Act).

¹⁹¹ 16 U.S.C. §§ 1361 *et seq.* (2018).

¹⁹² Final EIS at 5-10.

90. The final EIS identifies 30 state-listed threatened or endangered species with the potential to occur in the project area.¹⁹³ However, with the applicants' implementation of their project-specific Plan and Procedures, Stormwater Plan, and SPCC Plans, the final EIS concludes that the Rio Grande LNG Project would not significantly affect state-listed species.¹⁹⁴

91. We have reviewed all the information and analysis contained in the record regarding the potential environmental effects of the projects on all threatened, endangered and other special status species, including the ocelot and jaguarundi. With imposition of the conditions required herein, which include all measures required by FWS in its Biological Opinion, we find construction and operation of the projects as approved will be an environmentally acceptable action and not inconsistent with the public interest.

I. Land Use, Recreation, and Visual Resources

92. Land use in the vicinity of the projects is generally classified as shrub/forest land, open land, non-forested wetlands, barren, open water, industrial/commercial, and agricultural. Construction of the Rio Grande LNG Project would occur predominately on large tracts of land classified as open land with scrub-shrub vegetation.¹⁹⁵ The LNG Terminal would be sited on 750.4 acres of a 984.2-acre undeveloped parcel of land along the northern embankment of the Brownsville Ship Channel. The proposed LNG Terminal site includes shrub/forest land (27.8 percent), open land (25.5 percent), non-forested wetlands (21.7 percent), barren lands (10.8 percent), and open water (14.1 percent).¹⁹⁶ There are no existing or planned residential developments within 0.25 mile of the project site, but one planned commercial development, the Texas LNG Project, would be adjacent to the proposed LNG Terminal site along the northeast boundary, also on the north side of the Brownsville Ship Channel.¹⁹⁷ In addition, the Annova LNG Project is proposed for a 650-acre site approximately 0.3 mile south of the project site.¹⁹⁸

¹⁹³ *Id.*

¹⁹⁴ *Id.*

¹⁹⁵ *Id.* at 5-10.

¹⁹⁶ *Id.* at 4-180.

¹⁹⁷ *Id.* at 4-188.

¹⁹⁸ *Id.*

93. The Rio Bravo Pipeline would be sited predominately on rural, unincorporated areas, with the northern portion of the pipeline route characterized by large tracts of land used for ranch and cattle operations, and the southern portion characterized by grassland and cropland.¹⁹⁹ No residences would be located within 0.25 mile of the LNG Terminal, compressor stations, booster stations, or within 50 feet of the pipeline system.²⁰⁰ Although two residences are within 50 feet of proposed access roads, the roads are existing and would not require modification for project use.²⁰¹

94. Two National Wildlife Refuges, one National Historic Landmark, one public boat launch/fishing pier, four birding trails, one land acquisition project, and three conservation easements are within 0.25 mile of the proposed projects.²⁰² With the exception of the two wildlife refuges, which would only experience temporary impacts during construction of the Rio Bravo Pipeline, construction of the pipeline would directly affect each of these recreation/special use areas.²⁰³ However, because pipeline construction would only last a few weeks in any one area, with up to 10 weeks needed at 19 discrete locations for waterbodies that would be crossed by horizontal directional drill, these impacts would be temporary.²⁰⁴ Portions of the Laguna Atascosa and Lower Rio Grande Valley National Wildlife Refuges are proximal to the boundary of the LNG Terminal site. Although direct impacts on the wildlife or habitat in the refuges are not anticipated, some indirect impacts may occur during construction and operation of the projects (e.g., disturbance due to increased noise and nighttime lighting).²⁰⁵

95. Operation of the LNG Terminal would permanently modify the viewshed.²⁰⁶ However, the residential areas nearest to the LNG Terminal, Port Isabel and Laguna Heights, are each approximately 2.2 miles away. The presence of the LNG Terminal

¹⁹⁹ *Id.* at 4-181.

²⁰⁰ *Id.* at ES-9.

²⁰¹ *Id.* at 4-189.

²⁰² *Id.* at ES-9.

²⁰³ *Id.* The Rio Bravo Pipeline would not directly affect the Laguna Atascosa and Lower Rio Grande Valley National Wildlife Refuges. *Id.* at 5-10.

²⁰⁴ *Id.* at ES-9.

²⁰⁵ *See id.* at 4-98 – 4-101.

²⁰⁶ *Id.* at ES-10.

would primarily impact the views of motorists using State Highway 48 and of boaters using the Brownsville Ship Channel for a limited duration (i.e., until the vehicle or vessel passes the site).²⁰⁷ To minimize visual impacts of the aboveground structures, Rio Grande would use gray LNG storage tanks, maintain vegetation plantings, and construct a storm surge protection levee, which would obscure most construction activities and low-to-ground operational facilities from view.²⁰⁸

96. Vegetation clearing along the pipeline rights-of-way would result in minor long-term and permanent impacts on the viewshed.²⁰⁹ However, this would not be a substantial change from existing conditions due to the presence of other pipeline easements in the area and Rio Bravo's efforts to site the pipelines within or directly adjacent to existing pipeline corridors for about 66 percent of the route.²¹⁰ Although visual impacts from the compressor stations would be permanent, they would not be significant because the nearest residence is 2.9 miles away.²¹¹

97. The LNG Terminal and a portion of the pipeline facilities would be constructed within a designated coastal zone.²¹² Environmental Condition 31 requires the applicants, prior to construction, to file documentation of concurrence from the Texas Coastal Coordination Advisory Committee that the projects are consistent with the Texas Coastal Zone Management Program. Therefore, the final EIS concludes that the land use, recreation, and visual impacts associated with the projects would not be significant.

²⁰⁷ *Id.* at 5-11.

²⁰⁸ *Id.* at ES-10.

²⁰⁹ *Id.* at 5-12.

²¹⁰ *Id.*

²¹¹ *Id.*

²¹² *Id.* at 4-205.

J. Socioeconomics

98. The final EIS concludes that construction of the Rio Grande LNG Project would result in minor impacts on local populations,²¹³ employment,²¹⁴ housing,²¹⁵ public services,²¹⁶ and property values.²¹⁷ Neither construction nor operation of the projects would result in disproportionately high or adverse environmental and human health impacts on low-income and minority populations.²¹⁸ The projects are not anticipated to result in significant impacts on tourism or commercial fisheries.²¹⁹

99. Construction and operation of the projects would potentially impact vehicular and marine traffic due to, respectively, the influx of construction workers commuting to and from the LNG Terminal and pipeline facilities, and increased large vessel movements in the Brownsville Ship Channel.²²⁰ To mitigate impacts on vehicular traffic, Rio Grande would implement mitigation measures recommended in a traffic impact analysis, hire off-duty police officers to direct traffic during peak commuting hours, and install roadway signs to notify drivers of construction activities.²²¹ Rio Bravo, as required by Environmental Condition 32, must file traffic mitigation procedures to monitor roadway use during pipeline construction. Although adding six LNG carriers per week would double the Brownsville Ship Channel's current volume of large vessel marine traffic, the

²¹³ *Id.* at 4-205 – 4-211.

²¹⁴ *Id.* at 4-211 – 4-213.

²¹⁵ *Id.* at 4-224 – 4-225.

²¹⁶ *Id.* at 4-226 – 4-227.

²¹⁷ *Id.* at 4-232 – 4-233.

²¹⁸ *Id.* at 4-237 – 4-238. The dissent suggests that it is not enough to find that low-income and minority groups “will experience conditions no worse” than the surrounding county. However, the final EIS concludes, and we agree, that no populations in the area, including the low-income and minority groups, will experience significance adverse impacts.

²¹⁹ *See id.* at 4-216 – 4-219, 4-221 – 4-222.

²²⁰ *Id.* at 5-13 – 5-14.

²²¹ *Id.* at 5-13.

Coast Guard found the waterway suitable for use by the Rio Grande LNG Project.²²² The final EIS concludes that the projects would not have significant socioeconomic impacts.

K. Cultural Resources

100. Cultural resources surveys have been completed for the entire LNG Terminal site, and surveys conducted through 2016 covered approximately 56 percent of the proposed pipeline route and facility locations.²²³ Though some areas along pipeline reroutes have been surveyed since 2016, surveys for the entirety of the Rio Bravo Pipeline Project, including approximately 30 miles of the pipeline route that would cross the King Ranch National Historic Landmark, have not been completed due to access restrictions.²²⁴

101. Within the study area for indirect effects associated with the LNG Terminal, two additional National Historic Landmarks were identified – Palmito Ranch Battlefield and the Palo Alto Battlefield – located approximately 4.1 miles and 12 miles, respectively, from the boundary of the LNG Terminal site.²²⁵ The applicants completed viewshed and noise impacts assessments for these two historic battlefields, concluding that, due to distance and topography, the LNG Terminal would result in moderate (Palmito Ranch) and minor (Palo Alto) visual impacts, and no audible noise impacts.²²⁶ The National Park Service, which administers the National Historic Landmarks Program, has not yet commented on these assessments. In addition, the applicants have developed a plan for addressing unanticipated discovery of cultural resources or human remains during construction that Commission staff and the Texas State Historic Preservation Officer (SHPO) find acceptable.²²⁷

102. Among other things, Environmental Condition 33 prohibits the applicants from commencing construction of project facilities or use of work areas or proposed access

²²² *Id.* at ES-11; *see also* Commission staff's January 18, 2018 memo in Docket No. CP16-454-000 (containing the Coast Guard's December 26, 2017 Letter of Recommendation).

²²³ Final EIS at 5-14.

²²⁴ *Id.*

²²⁵ *Id.* at 4-239.

²²⁶ *Id.* at 5-14.

²²⁷ *See id.* at 5-15.

roads until all outstanding cultural resources survey reports and plans have been completed and reviewed by Commission staff, the SHPO, and the National Park Service, as applicable. To ensure that the Commission has fulfilled its responsibilities under section 106 of the National Historic Preservation Act,²²⁸ the applicants must also provide to the Commission additional documentation of consultation with the SHPO and the National Park Service, as applicable. If it is determined that the projects may adversely affect historic properties, the Advisory Council on Historic Preservation will be afforded an opportunity to comment.

L. Air Quality and Noise

103. Construction of the Rio Grande LNG Project would result in air pollutant emissions caused by vehicle operation, marine traffic, and fugitive dust generated during construction activities. The LNG Terminal would be constructed over a 78-month period. During the final three years of construction, concurrent emissions from commissioning, start-up, and operation of the Rio Grande LNG Terminal may exceed the National Ambient Air Quality Standards (NAAQS) in the immediate vicinity of the LNG Terminal.²²⁹ However, any exceedances would not be persistent at any one time due to the dynamic and fluctuating nature of construction activities within a day, week, or month.²³⁰ Construction emissions from the Rio Bravo Pipeline would consist of fuel combustion emissions from vehicles and construction equipment, and fugitive dust generated by excavation, grading and fill activities, and general construction activities. Although this could result in elevated emissions near construction areas, air quality impacts from construction of the pipeline facilities would be short-term and minor.²³¹

104. Operation of the Rio Grande LNG Project would result in minor impacts on local and regional air quality. The LNG Terminal (including Compressor Station 3) would be a Prevention of Significant Deterioration (PSD)²³² major source and a Title V major

²²⁸ 54 U.S.C. § 306108 (Pub. L. No. 113-287, 128 Stat. 3227, Dec. 19, 2014).

²²⁹ Final EIS at 4-269.

²³⁰ *Id.*

²³¹ *Id.* at 4-272.

²³² As applicable here, a major source of air pollutants is any stationary source which emits, or has the potential to emit, 250 tons per year of a regulated criteria pollutant. *Id.* at 4-251 (citing 40 C.F.R. § 51.166(b)(1)(i)(b)) (2018).

source for certain criteria pollutants and hazardous air pollutants.²³³ Once triggered by other pollutants, the PSD and Title V programs also extend to GHGs.²³⁴ The applicants completed a Best Available Control Technology assessment for the LNG Terminal as part of its application for a PSD permit,²³⁵ which the Texas Commission of Environmental Quality granted on December 17, 2018.²³⁶ The applicants plan to submit a Title V permit application for the LNG Terminal and Compressor Station 3 prior to commencing construction.²³⁷ Air quality modeling and ozone monitoring results demonstrate that emissions from the LNG Terminal and Compressor Station 3 would not cause or significantly contribute to an exceedance of the NAAQS.²³⁸ Similarly, because emissions from the Rio Bravo Pipeline would be minor and dispersed over the length of the pipeline, operation of the pipelines would not exceed the NAAQS.²³⁹ Given the applicants' proposed mitigation measures and adherence to air quality control and monitoring permit requirements, the final EIS concludes that the projects would not result in regionally significant impacts on air quality.²⁴⁰

105. Noise levels associated with project construction would vary depending on the phase of construction in progress at any time, with the highest noise levels during construction of the LNG Terminal construction occurring during pile-driving. There are four NSAs near the Rio Grande LNG Terminal site, as well as five other sites that would be potentially sensitive to sound level impacts (i.e., cultural sites and wildlife areas).²⁴¹ To ensure that noise levels associated with pile-driving do not exceed acceptable levels, Environmental Condition 34 requires Rio Grande to monitor pile-driving activities, file weekly noise data once pile-driving activities have begun, and implement mitigation

²³³ *Id.* at 5-15.

²³⁴ *E.g., id.* at 4-253 (noting that the applicants submitted a PSD application for CO, NO_x, VOC, PM₁₀, PM_{2.5}, and GHGs).

²³⁵ *Id.* at 4-253.

²³⁶ *Id.* at 5-15.

²³⁷ *Id.* at 5-16.

²³⁸ *Id.* at 5-15.

²³⁹ *Id.* at 4-272.

²⁴⁰ *Id.* at ES-13.

²⁴¹ *See id.* at 4-282 (Table 4.11.2-2).

measures if noise impacts exceed 10 decibels (dB) over ambient levels at nearby NSAs. Although nighttime pile-driving has been proposed at the nearby Annova LNG Project, the only 24-hour construction proposed at the Rio Grande LNG Terminal is dredging.²⁴² Construction of the Rio Bravo Pipeline Project would result in noise from internal combustion engines as well as horizontal directional drilling activities. Most pipeline construction would occur during daytime hours, and the resulting noise impacts would be temporary and vary in intensity as construction progresses along the pipeline corridor.²⁴³ Environmental Condition 37 requires Rio Bravo to prepare a horizontal directional drilling noise mitigation plan to reduce noise levels attributable to drilling operations for each NSA where horizontal directional drilling noise would exceed the Commission's day-night sound level limit of 55 dBA.

106. Operation of the LNG Terminal and the pipeline system's compressor, meter, and booster stations would produce noise on a continual basis during the lifetime of the project facilities.²⁴⁴ Operational noise impacts would be minor at the aboveground facilities along the pipeline system and at the NSAs in the vicinity of the LNG Terminal.²⁴⁵ To ensure NSAs are not significantly affected by operational noise, Environmental Conditions 35, 36, and 38 require the applicants to conduct post-construction noise surveys after each noise-producing unit (e.g., each liquefaction train and compressor) is placed into service and after the entire LNG Terminal (including Compressor Station 3) is placed into service. With the implementation of the mitigation measures proposed by the applicants and required by our environmental conditions, the final EIS concludes that construction and operation of the projects would not result in significant noise impacts on residents and surrounding communities.²⁴⁶

M. Greenhouse Gas Emissions

107. With respect to impacts from greenhouse gases (GHGs), the final EIS discusses the GHG emissions from construction and operation of the projects,²⁴⁷ the climate change

²⁴² See *id.* at 4-494.

²⁴³ *Id.* at ES-13.

²⁴⁴ *Id.* at ES-14.

²⁴⁵ *Id.* at 5-18.

²⁴⁶ *Id.*

²⁴⁷ *Id.* at 4-256 – 4-271 (LNG Terminal including Compressor Station 3) and 4-271 to 4-288 (pipeline facilities).

impacts in the region,²⁴⁸ and the regulatory structure for GHGs under the Clean Air Act.²⁴⁹

108. The final EIS estimates that operation of the projects, including the LNG Terminal and pipeline facilities, may result in GHG emissions of up to 9,070,827 metric tons per year of carbon dioxide equivalent (CO₂e).²⁵⁰ To provide context to the direct and indirect²⁵¹ GHG estimate, according to the national net CO₂e emissions estimate in the EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks* (EPA 2019), 5.743 billion metric tons of CO₂e were emitted at the national level in 2017 (inclusive of CO₂e sources and sinks).²⁵² The operational emissions of these facilities could potentially increase annual CO₂e emissions based on the 2017 levels by approximately 0.17 percent at the national level. Currently, there are no national targets to use as benchmarks for comparison and, similarly, Texas does not have GHG targets or benchmarks.²⁵³

109. The final EIS included a qualitative discussion that addressed various effects of climate change.²⁵⁴ The final EIS acknowledges that the quantified GHG emissions from the construction and operation of the projects will contribute incrementally to climate

²⁴⁸ *Id.* at 4-480 – 4-481.

²⁴⁹ *Id.* at 4-248 – 4-254.

²⁵⁰ *Id.* at Tables 4.11.1-7, 4.11.1-16, and 4.11.1-18. CO₂e emissions in the final EIS are expressed in short tons, which have been converted to metric tons in this order so the emissions may be viewed in context with the EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks*.

²⁵¹ Indirect GHG emissions are from vessel traffic associated with the project.

²⁵² EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017*, at ES-8 (2019), <https://www.epa.gov/sites/production/files/2019-04/documents/us-ghg-inventory-2019-main-text.pdf>.

²⁵³ The national emissions reduction targets expressed in the EPA's Clean Power Plan were repealed, Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emissions Guidelines Implementing Regulations, 84 Fed. Reg. 32,520, 32,522-32, 532 (July 8, 2019), and the targets in the Paris climate accord are pending withdrawal.

²⁵⁴ Final EIS at 4-479 – 4-482.

change.²⁵⁵ Further, the Commission has previously concluded it could not determine a project's incremental physical impacts on the environment caused by GHG emissions.²⁵⁶ The Commission has also previously concluded it could not determine whether a project's contribution to climate change would be significant.²⁵⁷

N. Reliability and Safety

110. As part of the NEPA review, Commission staff assessed potential impacts to the human environment in terms of safety and whether the proposed facilities would operate safely, reliably, and securely. Commission staff conducted a preliminary engineering and technical review of the Rio Grande LNG Terminal, including potential external impacts based on the site location. Based on this review, the final EIS recommends a number of mitigation measures for implementation prior to initial site preparation, prior to construction of final design, prior to commissioning, prior to introduction of hazardous fluids, prior to commencement of service, and throughout the life of the facility, to enhance the reliability and safety of the facility. With these measures, the final EIS concludes that acceptable layers of protection or safeguards would reduce the risk of a potentially hazardous scenario from developing that could impact the offsite public.²⁵⁸ These recommendations have been adopted as mandatory conditions in the appendix to this order. Environmental Conditions 43, 56, 60, 73, 117, 118, and 122 have been modified since issuance of the final EIS to be consistent with language in recently issued orders; however, the original intent of each environmental condition is the same.

111. The applicants state that the proposed project would be designed, constructed, operated, and maintained to meet or exceed Coast Guard Safety Standards,²⁵⁹ the DOT Minimum Federal Safety Standards,²⁶⁰ and other applicable federal and state regulations.²⁶¹ On December 26, 2017, the Coast Guard issued a Letter of

²⁵⁵ See *id.* at 4-481.

²⁵⁶ *Dominion Transmission, Inc.*, 163 FERC ¶ 61,128, at PP 67-70 (2018) (LaFleur, Comm'r, *dissenting in part*; Glick, Comm'r, *dissenting in part*).

²⁵⁷ *Id.*

²⁵⁸ Final EIS at 5-19.

²⁵⁹ 33 C.F.R. pts. 105, 127 (2019).

²⁶⁰ 49 C.F.R. pts. 192 and 193 (2019).

²⁶¹ See final EIS at 1-21 – 1-24 (Table 1.5-1) (summarizing the major federal and state permits, approvals, and consultations required for the construction and operation of

Recommendation to the Commission, indicating that the Brownsville Ship Channel would be considered suitable for accommodating the type and frequency of LNG marine traffic associated with the Rio Grande LNG Terminal.²⁶² If the LNG Terminal is authorized and constructed, the facility would be subject to the Coast Guard's inspection and enforcement program to ensure compliance with the requirements of 33 C.F.R. 105 and 33 C.F.R. 127.²⁶³

112. Further, as described above,²⁶⁴ PHMSA determined that the siting of the proposed LNG facilities complies with the federal safety standards governing the location, design, construction, operation, and maintenance of LNG facilities.²⁶⁵ PHMSA's Letter of Determination summarizes PHMSA's evaluation of the hazard modeling results and endpoints used to establish exclusion zones, as well as its review of Rio Grande LNG's evaluation of potential incidents and safety measures that could have a bearing on the safety of plant personnel and the surrounding public. PHMSA's safety standards would also apply to the currently under construction Valley Crossing Pipeline that would be routed through the northern portion of the proposed LNG Terminal site.²⁶⁶ To protect the Valley Crossing Pipeline during construction and operation of the LNG Terminal, Rio Grande has identified protective measures and staff has made additional recommendations for temporary and permanent crossings.²⁶⁷ Accordingly, with regard to the Valley Crossing Pipeline, the final EIS determines that the likelihood of a pipeline incident or failure would be low, and that a pipeline rupture would be even less likely.²⁶⁸

113. Commission staff corresponded with the FAA in evaluating the impacts on and from the SpaceX rocket launch facility in Cameron County. Certain conditions of this order require Rio Grande to address potential impacts from rocket launch failures on the

the Project).

²⁶² See Commission staff's January 18, 2018 memo in Docket No. CP16-454-000 (containing the Coast Guard's December 26, 2017 Letter of Recommendation).

²⁶³ 33 C.F.R. §§ 105 and 127 (2019).

²⁶⁴ See *supra* P 23.

²⁶⁵ See 49 C.F.R. pt. 193, Subpart B (2019).

²⁶⁶ 49 C.F.R. pt. 195 (2019).

²⁶⁷ Final EIS at 5-18.

²⁶⁸ *Id.*

LNG Terminal.²⁶⁹ However, the extent of potential impacts on SpaceX operations, the National Space Program, and to the federal government would not fully be known until SpaceX submits an application with the FAA requesting to launch, and will depend on whether the LNG Terminal is under construction or in operation at that time.²⁷⁰

114. Rio Bravo must design, construct, operate, and maintain its pipelines and aboveground facilities in accordance with the DOT Minimum Federal Safety Standards. These regulations, which are intended to protect the public and to prevent natural gas facility accidents and failures, include specifications for material selection and qualification, minimum design requirements, and protection of pipelines from corrosion. Accordingly, the final EIS concludes that Rio Bravo's compliance with the DOT's safety standards will ensure that construction and operation of the Rio Bravo Pipeline Project would not have a significant impact on public safety.²⁷¹

O. Cumulative Impacts

115. The final EIS considers the cumulative impacts of the proposed Rio Grande LNG and Rio Bravo Pipeline Projects with other projects in the same geographic and temporal scope of the projects.²⁷² The types of other projects evaluated in the final EIS that could potentially contribute to cumulative impacts on a range of environmental resources include future LNG liquefaction and export projects, currently operating and future oil and gas projects, electric transmission and generation projects, land transportation projects, commercial developments, waterway improvement projects, and other miscellaneous activities.²⁷³

116. The final EIS concludes that for the majority of resources where a level of impact could be ascertained, the projects' contribution to cumulative impacts on resources affected by the projects would not be significant, and that the potential cumulative impacts of the projects and the other projects considered would be minor or

²⁶⁹ See Environmental Conditions 46 (construction crew positioning procedures during rocket launch activity) and 131 (rocket launch monitoring procedures).

²⁷⁰ Final EIS at 4-381.

²⁷¹ *Id.* at 5-19.

²⁷² *Id.* at ES-15 – ES-18, 4-392 – 4-495.

²⁷³ *Id.* at 5-19.

insignificant.²⁷⁴ However, the Rio Grande LNG Project combined with other projects within the geographic scope, including the Texas LNG and Annova LNG Projects, would contribute to potential significant cumulative impacts on surface water quality in the Brownsville Ship Channel during operational vessel transits; on the federally listed ocelot and jaguarundi from habitat loss and increased potential for vehicular strikes during construction; on the federally listed aplomado falcon from habitat loss; on visual resources from the presence of aboveground structures; and on nearby NSAs to the LNG terminals during nighttime construction. The final EIS discusses applicable mitigation measures, laws and regulations protecting environmental resources, and permitting requirements to minimize effects on these resources. Below, we briefly address each potentially significant cumulative impact in turn.

117. Concurrent operation of the Rio Grande LNG, Texas LNG, and Annova LNG Projects would increase the number of large, ocean-going vessels transiting the Brownsville Ship Channel by 48 percent.²⁷⁵ Increased marine vessel traffic would result in a significant cumulative impact on surface water resources during operations from increased turbidity and shoreline erosion.²⁷⁶ The Rio Grande LNG, Texas LNG, and Annova LNG Projects would incorporate design features to minimize shoreline erosion and would be responsible for maintaining the shoreline to prevent future erosion.²⁷⁷ Moreover, use of the channel by LNG carriers, barges, and support vessels would be consistent with the planned purpose and use of the Brownsville Ship Channel.²⁷⁸ However, given the substantial increase in large vessel traffic within the channel related to the three Brownsville LNG projects, and other projects, the final EIS anticipates that cumulative impacts on surface water resources associated with shoreline erosion and turbidity from increased vessel traffic would be significant and relatively persistent throughout the life of the projects.²⁷⁹

118. Due to the extent of habitat modification associated with the Rio Grande LNG Project, and other projects in the geographic scope that would be built at the same time as the proposed Rio Grande LNG Project, moderate to significant cumulative impacts would

²⁷⁴ *Id.* at 5-19 – 5-22.

²⁷⁵ *Id.* at 4-427.

²⁷⁶ *Id.*

²⁷⁷ *Id.*

²⁷⁸ *Id.*

²⁷⁹ *Id.*

likely occur for certain federally listed threatened and endangered species. Specifically, the final EIS anticipates that significant cumulative impacts would likely occur for the ocelot and jaguarundi, given the loss and/or decrease in suitability of habitat within and adjacent to the projects and the increased potential for vehicular strikes during construction. The final EIS also anticipates significant cumulative impacts for the northern aplomado falcon due to loss of foraging and nesting habitat and potential disruption of nesting in the vicinity of the projects.²⁸⁰ Moderate cumulative impacts are anticipated for sea turtles due to dredging, vessel traffic, and pile-driving.²⁸¹

119. The potential for cumulative visual impacts would be greatest if, in addition to the proposed Rio Grande LNG Terminal, the Annova LNG and Texas LNG Projects are permitted and built concurrently along the Brownsville Ship Channel. Because motorists on State Highway 48 and other local roadways and visitors to local recreation areas would experience a permanent change in the existing viewshed during construction and operation of the projects, the final EIS concludes that the cumulative impacts of the three LNG projects on visual resources would be significant.²⁸²

120. With regards to nighttime construction noise, the only 24-hour construction proposed at the Rio Grande LNG Terminal would be dredging. The estimated sound level from dredging associated with the Rio Grande LNG Terminal at the nearest NSAs would be below existing ambient sound levels, and noise associated with dredging activities is not expected to be perceptible.²⁸³ Although significantly higher noise levels are estimated for the duration of the Annova LNG Project's nighttime pile-driving, resulting in significant cumulative noise impacts, the Rio Grande LNG Terminal's contribution to cumulative nighttime construction noise would be negligible.²⁸⁴ The predicted sound level impacts for simultaneous operation of all three LNG projects are much lower than the construction impacts, with potential sound level increases between 0.3 and 1.5 dBA L_{dn} at NSAs, resulting in a negligible to minor cumulative impact.²⁸⁵

²⁸⁰ *Id.* at 4-451.

²⁸¹ *Id.*

²⁸² *Id.* at 5-21.

²⁸³ *Id.* at 4-494.

²⁸⁴ *Id.*

²⁸⁵ *Id.* at 5-22.

P. Alternatives

121. The final EIS evaluates several alternatives to the proposed projects, including the No-Action Alternative, system alternatives for the proposed LNG and pipeline facilities, LNG Terminal site alternatives, and pipeline configuration and route alternatives.²⁸⁶ The final EIS also describes Rio Grande's original proposal to construct a temporary haul road to transport fill material from the Port Isabel dredge pile to the LNG Terminal site, Commission staff's assessment of impacts on wetlands along the proposed haul road, and the draft EIS's recommendation that Rio Grande conduct a feasibility assessment to evaluate the use of existing roads or barges to transport fill material.²⁸⁷ Following the draft EIS's recommended assessments, Rio Grande eliminated the temporary haul road from its proposal and plans to pursue transportation of fill material by barge.²⁸⁸ The final EIS concludes that the alternatives considered do not offer a significant environmental advantage and the proposed projects, as modified by Commission staff's recommended measures, are the preferred alternative.²⁸⁹

Q. Comments Received After Issuance of the Final EIS

122. As noted above, seven individuals, one state agency, one local municipality, and a group of environmental and local resident organizations filed comments after issuance of the final EIS. David Davidson commented that the projects should not be built at the proposed location and, without elaboration, urged that the projects be relocated north to an area with less environmental impacts. Erika Garzoria also filed comments in general opposition to the LNG facilities. Christi Craddick, Chairman of the Railroad Commission of Texas, and Doyle Wells each filed letters in support of the Rio Grande LNG Project.

123. Kenneth Teague asserts that the final EIS does not satisfy the requirements of NEPA for several reasons, most of which are related to data and assessments that are pending finalization by other federal agencies. Mr. Teague reasserts many of the issues raised in his comment letter on the draft EIS, which Commission staff previously

²⁸⁶ *Id.* at 3-2 – 3-28.

²⁸⁷ *Id.* at 3-22 – 3-24.

²⁸⁸ *Id.* at 3-24.

²⁸⁹ *Id.* at 5-23 – 5-24.

addressed in the final EIS.²⁹⁰ New or revised issues raised by Mr. Teague are discussed herein.

124. Mr. Teague indicates that the final EIS fails to acknowledge, in all appropriate locations, the co-equal roles of the EPA and the COE in authorizing use of an Ocean Dredged Material Disposal Site (ODMDS), and the rigorous testing, per the Green Book,²⁹¹ needed for sediment placement at an ODMDS. We disagree. The final EIS explains that use of an ODMDS would require EPA and COE approval,²⁹² development of an EPA Site Management and Monitoring Plan, and COE approval of a dredged material disposal site alternatives analysis.²⁹³ Further, the final EIS references a publicly available copy of Rio Grande's Dredged Material Management Plan,²⁹⁴ which identifies the need for survey and sediment testing of the dredge site in accordance with the Green Book, as well as benthic monitoring of the ODMDS.

125. Mr. Teague indicates that the impacts of dredged material disposal is only disclosed in extremely broad, general terms, as final placement of dredged materials is not yet determined. As dredged material would be placed in accordance with applicable permits, the predominant impacts associated with the use of existing upland placement areas, the ODMDS, or the feeder berm would be a temporary increase in turbidity and suspended sediments. In addition, use of the feeder berm, if deemed appropriate, would result in beneficial impacts due to beach re-nourishment.²⁹⁵ The final EIS further notes

²⁹⁰ See *id.*, Appendix R. Mr. Teague's comment letter on the draft EIS, and Commission staff's responses to each, is included in volume III, part 6 as comment IND73.

²⁹¹ This manual approved by the EPA and the COE, commonly referred to as the "Green Book," contains technical guidance for determining the suitability of dredged material for ocean disposal through chemical, physical, and biological evaluations. The technical guidance is intended for use by dredging applicants, laboratory scientists and regulators in evaluating dredged-material compliance with the U.S. Ocean Dumping Regulations.

²⁹² Final EIS at 2-39, 4-19, 4-21.

²⁹³ *Id.*

²⁹⁴ *Id.* at 4-41.

²⁹⁵ *Id.* at 4-40. As the final EIS explains, the feeder berm is a 313-acre beneficial use site about 2 miles north of the jetty and about 0.5 mile offshore. *Id.* at 4-22. After testing to confirm that material is suitable beach quality sand, materials placed at this

that placement of dredged materials at an ODMDS would result in impacts on aquatic life including, but not limited to, temporary displacement, a decrease in foraging success, and burial of benthic organisms.²⁹⁶

126. Mr. Teague claims that the final EIS does not acknowledge the existence of seagrasses in Bahia Grande and fails to analyze whether project dredging will impact them. We disagree. No seagrasses have been mapped or identified within the Bahia Grande.²⁹⁷ However, anecdotal reports of seagrasses have been noted near the center of the Bahia Grande, by which point suspended sediments would have likely settled given Rio Grande's required adherence to water quality permits associated with dredging²⁹⁸ and the relatively low current speed at the proposed site (0.3 knots).²⁹⁹

127. Mr. Teague indicates that Commission staff's assessment of low revegetation potential across 2,200 acres contradicts statements in the final EIS that refer to "simple restoration by revegetation." The final EIS acknowledges that 2,215.9 acres of affected soils would have low revegetation potential.³⁰⁰ A total of 1,026.5 acres of these affected soils are within the footprint of the LNG Terminal site and would be converted to industrial use. The remaining 1,225.4 acres of affected soils with low revegetation potential are located along the pipeline route. Although the final EIS acknowledges the potential restoration difficulties of these areas, restoration is nevertheless required by the applicants' project-specific Plan and Procedures, which include criteria for successful revegetation. Further, Rio Bravo plans to mitigate for the low revegetation potential by using seed mixes recommended by the National Resource Conservation Service, which would include species suitable for saline soils as appropriate, and, where applicable, by adding fertilizer and pH modifiers to topsoil in accordance with recommendations from the National Resource Conservation Service, land management agencies, or landowners.³⁰¹

location migrate inshore to replenish the adjacent beach. *Id.*

²⁹⁶ *Id.* at 4-108.

²⁹⁷ *Id.* at 4-105.

²⁹⁸ *Id.* at 4-105 – 4-106, 4-108.

²⁹⁹ *Id.* at 4-39.

³⁰⁰ *Id.* at 4-13.

³⁰¹ *Id.* at 4-17.

128. Mr. Teague asserts that the final EIS improperly identifies the preservation of lomas to compensate for wetland loss. Although the final EIS identifies the Loma Ecological Preserve as Rio Grande's proposed mitigation site for wetland impacts, Rio Grande is proposing the preservation of wetlands present at the Loma Ecological Preserve to mitigate for wetland impacts. Further, the final EIS specifies that Rio Grande's and Rio Bravo's proposed mitigation has not been approved by the COE and that final mitigation would occur as required by any permit issued by the COE under section 404 of the CWA and section 10 of the Rivers and Harbors Act.³⁰²

129. In May 30, 2019 and June 17, 2019 filings, Defenders of Wildlife asserts that the Commission must prepare a supplemental EIS to address future expansion of the Rio Grande LNG Terminal. Pointing to other facilities that reportedly have similar designs and nameplate capacity, Defenders of Wildlife contends that the Rio Bravo Pipeline design is significantly larger than what is needed to supply the authorized capacity of 27 MTPA at the LNG Terminal. Defenders of Wildlife also asserts that expansion of the LNG Terminal is reasonably foreseeable and that therefore the Commission cannot approve the project without considering the environmental impacts of these additional exports. Relying on a May 5, 2019 presentation,³⁰³ a May 28, 2019 press release,³⁰⁴ and a June 5, 2019 presentation,³⁰⁵ Defenders of Wildlife claims that NextDecade, Rio Grande's and Rio Bravo's parent company, plans to increase the LNG Terminal's capacity by an additional 1.0 MTPA beyond the nameplate 4.5 MTPA capacity for each liquefaction train, for a total capacity of 33 MTPA. Maria Galasso, John Young, and the Town of Laguna Vista each filed comments echoing Defenders of Wildlife's request for a supplemental EIS to address the claims that the design and capacity of Rio Grande's LNG Terminal will exceed 27 MTPA.

130. In response, Rio Grande maintains that it does not intend to produce more than 27 MTPA of LNG, the volume evaluated by Commission staff and authorized by DOE for export to Free Trade Agreement countries.³⁰⁶ However, Rio Grande acknowledges that it must secure authorization from the Commission, DOE, and any other federal or state agency with jurisdiction over the project prior to increasing the LNG Terminal's

³⁰² *Id.* at 4-68, 4-69.

³⁰³ Defenders of Wildlife's May 30, 2019 Comment, Exhibit 1.

³⁰⁴ Defenders of Wildlife's June 17, 2019 Comment, Exhibit 1.

³⁰⁵ *Id.*, Exhibit 2.

³⁰⁶ *See supra* P 21; *see also* Rio Grande and Rio Bravo's June 3, 2019 Response to Request for Supplemental EIS at 2.

production capacity or exports in excess of previously-authorized volumes.³⁰⁷ In addition, based on pipeline capacity modeling performed by Commission staff, the Rio Bravo Pipeline Project cannot accommodate a smaller pipeline (i.e., 36 inch-diameter pipeline as opposed to 42-inch-diameter pipeline as proposed) to deliver 4.5 Bcf per day to the LNG Terminal without additional compressor stations and/or pipeline looping, which would increase the project's environmental impact.

131. Section 1502.9(c)(1) of CEQ's regulations requires agencies to prepare a supplemental EIS if (i) "the agency makes substantial changes in the proposed action that are relevant to environmental concerns" or (ii) "there are significant new circumstances or information relevant to environmental concerns."³⁰⁸ Neither circumstance is applicable here. The presentations and press release referenced by Defenders of Wildlife appear to be publicly available marketing documents and investor materials. These documents are not, as suggested by Defenders of Wildlife, evidence of an intent by NextDecade to pursue expansion of its Rio Grande LNG Terminal. Further, as Rio Grande recognizes, any expansion of export capacity and/or additional LNG exports vessels at the Rio Grande LNG Terminal would require Rio Grande to seek and receive additional authorizations from DOE, the Commission, and other applicable federal and state agencies. Any incremental environmental impacts not evaluated as part of the instant proceeding would be analyzed prior to Commission action on any future request for authorization to expand the LNG Terminal's export capacity. Accordingly, because Defenders of Wildlife's filings do not provide new environmentally significant information or pose substantial changes to the proposed action, preparation of a supplemental EIS is not required.³⁰⁹

R. Environmental Analysis Conclusion

132. We have reviewed the information and analysis contained in the final EIS regarding potential environmental effects of the projects, as well as other information in the record. We are adopting the environmental recommendations in the final EIS, as modified herein, and include them as conditions in the appendix to this order. Compliance with the environmental conditions appended to our orders is integral to ensuring that the environmental impacts of approved projects are consistent with those anticipated by our environmental analyses. Thus, Commission staff carefully reviews all information submitted. Commission staff will only issue a construction notice to

³⁰⁷ Rio Grande and Rio Bravo's June 3, 2019 Response to Request for Supplemental EIS at 5-7.

³⁰⁸ 40 C.F.R. § 1502.9(c)(1) (2019).

³⁰⁹ *See id.*

proceed with an activity when satisfied that the applicant has complied with all applicable conditions. We also note that the Commission has the authority to take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the projects, including authority to impose any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the order, as well as the avoidance or mitigation of unforeseen adverse environmental impacts resulting from project construction and operation.³¹⁰

133. We agree with the conclusions presented in the final EIS and find that the projects, if constructed and operated as described in the final EIS, are environmentally acceptable actions. Further, for the reasons discussed throughout the order, as stated above, we find that the Rio Grande LNG Terminal is not inconsistent with the public interest and that the Rio Bravo Pipeline Project is in the public convenience and necessity.

134. Any state or local permits issued with respect to the jurisdictional facilities authorized herein must be consistent with the conditions of this authorization and Certificate. The Commission encourages cooperation between applicants and local authorities. However, this does not mean that state and local agencies, through application of state or local laws, may prohibit or unreasonably delay the construction or operation of facilities approved by this Commission.³¹¹

VI. Conclusion

135. At a hearing held on November 21, 2019, the Commission on its own motion received and made part of the record in this proceeding all evidence, including the application, as supplemented, and exhibits thereto, and all comments, and upon consideration of the record,

The Commission orders:

(A) In Docket No. CP16-454-000, Rio Grande is authorized under section 3 of the NGA to site, construct, and operate the proposed project located in Cameron County,

³¹⁰ See Environmental Conditions 2 and 3.

³¹¹ See 15 U.S.C. § 717r(d) (state or federal agency's failure to act on a permit considered to be inconsistent with Federal law); see also *Schneidewind v. ANR Pipeline Co.*, 485 U.S. 293, 310 (1988) (state regulation that interferes with FERC's regulatory authority over the transportation of natural gas is preempted) and *Dominion Transmission, Inc. v. Summers*, 723 F.3d 238, 245 (D.C. Cir. 2013) (noting that state and local regulation is preempted by the NGA to the extent it conflicts with federal regulation, or would delay the construction and operation of facilities approved by the Commission).

Texas, as described and conditioned herein, and as more fully described in Rio Grande's application and subsequent filings by the applicant, including any commitments made therein.

(B) The authorization in Ordering Paragraph (A) above is conditioned on:

- 1) Rio Grande's facilities being fully constructed and made available for service within seven years of the date of this order.
- 2) Rio Grande's compliance with the environmental conditions listed in the appendix to this order.

(C) In Docket No. CP16-455-000, a certificate of public convenience and necessity under section 7(c) of the NGA is issued to Rio Bravo, authorizing it to construct and operate the proposed project, as described and conditioned herein, and as more fully described in Rio Bravo's application and subsequent filings by the applicant, including any commitments made therein.

(D) The certificate authorized in Ordering Paragraph (C) above is conditioned on:

- 1) Rio Bravo's facilities being fully constructed and made available for service within seven years of the date of this order pursuant to section 157.20(b) of the Commission's regulations;
- 2) Rio Bravo's compliance with all applicable Commission regulations, particularly the general terms and conditions set forth in Parts 154, 157, and 284, and paragraphs (a), (c), (e), and (f) of section 157.20 of the Commission's regulations; and
- 3) Rio Bravo's compliance with the environmental conditions listed in the appendix to this order.

(E) Rio Bravo's request for a blanket transportation certificate under Subpart G of Part 284 of the Commission's regulations is granted.

(F) Rio Bravo's request for a blanket construction certificate under Subpart F of Part 157 of the Commission's regulations is granted.

(G) Rio Bravo shall file a written statement affirming that it has executed firm contracts for the capacity levels and terms of service represented in its filed precedent agreement, prior to commencing construction.

(H) Rio Bravo's initial recourse rates and *pro forma* tariff are approved, as conditioned and modified in this order.

(I) Rio Bravo shall file actual tariff records that comply with the requirements contained in the body of this order at least 60 days prior to the commencement of interstate service consistent with Part 154 of the Commission's regulations.

(J) As discussed herein, Rio Bravo must file a cost and revenue study no later than three months after its first three years of actual operation to justify its existing cost-based firm and interruptible recourse rates.

(K) Rio Bravo shall adhere to the AFUDC accounting and reporting requirements discussed in the body of the order.

(L) Rio Grande and Rio Bravo shall notify the Commission's environmental staff by telephone or e-mail of any environmental noncompliance identified by other federal, state, or local agencies on the same day that such agency notifies Rio Grande or Rio Bravo. Rio Grande and Rio Bravo shall file written confirmation of such notification with the Secretary of the Commission within 24 hours.

(M) Defenders of Wildlife's request for a formal hearing is denied.

By the Commission. Commissioner Glick is dissenting with a separate statement attached.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.

Appendix

Environmental Conditions

As recommended in the final environmental impact statement (EIS), this authorization includes the following conditions:

1. Rio Grande LNG, LLC (Rio Grande) and Rio Bravo Pipeline Company, LLC (Rio Bravo) shall follow the construction procedures and mitigation measures described in their application and supplements (including responses to staff data requests) and as identified in the final environmental impact statement (EIS), unless modified by the Order. Rio Grande and Rio Bravo must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (Secretary);
 - b. justify each modification relative to site-specific conditions;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
 - d. receive approval in writing from the Director of the Office of Energy Projects (OEP) **before using that modification.**
2. For the liquefied natural gas (LNG) Terminal, the Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of life, health, property, and the environment during construction and operation of the project. This authority shall allow:
 - a. the modification of conditions of the Order;
 - b. stop-work authority and authority to cease operation; and
 - c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact

resulting from project construction and operation.

3. For the pipeline facilities, the Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the project. This authority shall allow:
 - a. the modification of conditions of the Order;
 - b. stop-work authority; and
 - c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from project construction and operation.
4. **Prior to any construction**, Rio Grande and Rio Bravo shall each file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, environmental inspectors (EIs), and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.
5. The authorized facility locations shall be as shown in the EIS, as supplemented by filed alignment sheets. **As soon as they are available and before the start of construction**, Rio Grande and Rio Bravo shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

Rio Bravo's exercise of eminent domain authority granted under Natural Gas Act (NGA) Section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. Rio Bravo's right of eminent domain granted under NGA section 7(h) does not authorize it to increase the size of its natural gas pipeline or facilities to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.
6. Rio Grande and Rio Bravo shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, contractor/pipe yards, new access roads, and other areas that will be used or disturbed and have

not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species will be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area.**

This requirement does not apply to extra workspace allowed by the Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan* and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

- a. implementation of cultural resources mitigation measures;
- b. implementation of endangered, threatened, or special concern species mitigation;
- c. recommendations by state regulatory authorities; and
- d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

7. **Within 60 days of the Order and before construction begins,** Rio Grande and Rio Bravo shall each file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. Rio Grande and Rio Bravo must file revisions to the plan as schedules change. The plans shall identify:
- a. how Rio Grande and Rio Bravo will implement the construction procedures and mitigation measures described in their application and supplements (including responses to staff data requests), identified in the EIS, and required by the Order;
 - b. how Rio Grande and Rio Bravo will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
 - c. the number of EIs assigned per spread and/or facility, and how Rio Grande and Rio Bravo will ensure that sufficient personnel are available to implement the environmental mitigation;
 - d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;

- e. the location and dates of the environmental compliance training and instructions Rio Grande and Rio Bravo will give to all personnel involved with construction and restoration (initial and refresher training as the projects progress and personnel changes), with the opportunity for OEP staff to participate in the training session(s);
 - f. the company personnel (if known) and specific portion of Rio Grande's and Rio Bravo's organizations having responsibility for compliance;
 - g. the procedures (including use of contract penalties) Rio Grande and Rio Bravo will follow if noncompliance occurs; and
 - h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
 - i. the completion of all required surveys and reports;
 - ii. the environmental compliance training of onsite personnel;
 - iii. the start of construction; and
 - iv. the start and completion of restoration.
8. Rio Grande and Rio Bravo shall employ a team of EIs (at least one EI per stage of LNG Terminal construction and at least two EIs per pipeline spread) for the project. The EIs shall be:
- a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
 - b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 7 above) and any other authorizing document;
 - c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
 - d. a full-time position, separate from all other activity inspectors;
 - e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
 - f. responsible for maintaining status reports.
9. Beginning with the filing of their respective Implementation Plans, Rio Grande and Rio Bravo shall file updated status reports with the Secretary on a **monthly** basis for the LNG Terminal and a **weekly** basis for the pipeline facilities until all construction and restoration activities are complete. Problems of a significant magnitude shall be reported to the Commission **within 24 hours**. On request,

these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

- a. an update on Rio Grande's and Rio Bravo's efforts to obtain the necessary federal authorizations;
 - b. Project schedule, including current construction status of the project and work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally-sensitive areas;
 - c. a listing of all problems encountered, contractor nonconformance/deficiency logs, and each instance of noncompliance observed by the EIs during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
 - d. a description of the corrective and remedial actions implemented in response to all instances of noncompliance, nonconformance, or deficiency;
 - e. the effectiveness of all corrective and remedial actions implemented ;
 - f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
 - g. copies of any correspondence received by Rio Grande or Rio Bravo from other federal, state, or local permitting agencies concerning instances of noncompliance, and Rio Grande's or Rio Bravo's response.
10. Rio Grande and Rio Bravo must receive written authorization from the Director of OEP **before commencing construction of any project facilities**. To obtain such authorization, Rio Grande and Rio Bravo must file with the Secretary documentation that they have received all applicable authorizations required under federal law (or evidence of waiver thereof).
 11. Rio Grande must receive written authorization from the Director of OEP **prior to introducing hazardous fluids into the project facilities**. Instrumentation and controls, hazard detection, hazard control, and security components/systems necessary for the safe introduction of such fluids shall be installed and functional.
 12. Rio Bravo must receive written authorization from the Director of OEP, **before placing each phase of the pipeline system into service** (i.e., Header System/Pipeline 1 and associated facilities, and Pipeline 2 and upgrades to associated facilities). Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the project are proceeding satisfactorily.
 13. Rio Grande must receive written authorization from the Director of OEP **before**

placing the LNG Terminal into service. Such authorization will only be granted following a determination that the facilities have been constructed in accordance with the Commission's approval, can be expected to operate safely as designed, and the rehabilitation and restoration of the areas affected by the LNG Terminal are proceeding satisfactorily.

14. **Within 30 days of placing each of the authorized facilities in service,** Rio Grande and Rio Bravo shall each file an affirmative statement with the Secretary, certified by a senior company official:
 - a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
 - b. identifying which of the conditions of the Order Rio Grande and Rio Bravo have complied with or will comply with. This statement shall also identify any areas affected by the project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.
15. **Prior to construction of Compressor Station 2, and Booster Stations 1 and 2,** Rio Bravo shall file with the Secretary results of its geotechnical investigations and recommended site preparation and foundation designs that Rio Bravo will adopt, stamped and sealed by the professional engineer-of-record licensed in the state where the project is being constructed, for each site, that incorporates the results of geotechnical investigations. (*section 4.1.1.1*)
16. **Prior to construction of each of the Horizontal Directional Drill (HDD) locations,** Rio Bravo shall file with the Secretary, results of its geotechnical investigations for each of these sites, including any recommended mitigation measures Rio Bravo will adopt as part of the final engineering design, for review and written approval by the Director of OEP. (*section 4.1.1.1*)
17. **Prior to construction,** Rio Grande and Rio Bravo shall file their final Fugitive Dust Control Plans for the LNG Terminal and Pipeline System with the Secretary, for review and written approval by the Director of OEP. The final plans shall specify that no chemicals may be used for dust control in Willacy and Cameron Counties, Texas. (*section 4.2.2.1*)
18. **Prior to construction,** Rio Grande and Rio Bravo shall file with the Secretary, for review and written approval by the Director of the OEP, final versions of their *Stormwater Pollution Prevention Plans* and *Spill Prevention, Control, and Countermeasure Plans* for construction and operation of each project, as well as the final version of the *Unanticipated Contaminated Sediment and Soils Discovery Plan*. (*section 4.2.2.1*)

19. **Prior to construction of the LNG Terminal**, Rio Grande shall file with the Secretary, for review and written approval by the Director of OEP, its final LNG Tank Hydrostatic Test Plan. (*section 4.3.2.2*)
20. **Prior to construction of the Rio Bravo Pipeline through wetland WW-T04-015**, Rio Bravo shall file with the Secretary, for review and written approval by the Director of OEP, revised construction right-of-way configurations that either exclude inaccessible temporary workspace at the wetland crossing, or reconfigure the workspace so that it complies with section 6.1.3 of Rio Bravo's project-specific Procedures. (*section 4.4.2.2*)
21. **Prior to construction of the Rio Bravo Pipeline**, Rio Bravo shall consult with the Texas Parks and Wildlife Department (TPWD) to determine specific locations along the pipeline right-of-way that may warrant topsoil segregation based on the probable presence of rare plant species. Copies of consultation with the TPWD, along with any additional areas warranting topsoil segregation, shall be filed with the Secretary, for review and written approval by the Director of OEP. (*section 4.5.4*)
22. **Prior to construction of the LNG Terminal**, Rio Grande shall consult with the TPWD and the U.S. Fish and Wildlife Service (FWS) to finalize nighttime lighting plans to minimize impacts on wildlife to the greatest extent practical. The final plans and copies of consultation with the agencies shall be filed with the Secretary for review and written approval by the Director of OEP. (*section 4.6.1.2*)
23. **Prior to construction**, Rio Grande and Rio Bravo shall consult with the FWS and TPWD to develop a final Migratory Bird Conservation Plan (MBCP), which shall include outstanding surveys at the Port Isabel dredge pile. Rio Grande and Rio Bravo shall file with the Secretary the revised MBCP and evidence of consultation with the FWS and TPWD. (*section 4.6.1.3*)
24. **Prior to construction of the Rio Bravo Pipeline HDD crossings at Mileposts (MPs) 115.6 and 116.4**, Rio Bravo shall file with the Secretary, for review and written approval by the Director of OEP, estimates of ambient sound levels at the boundary of the Lower Rio Grande Valley National Wildlife Refuge near the HDDs, as well as anticipated noise impacts and any necessary mitigation to minimize potential effects on wildlife. (*section 4.6.1.4*)
25. **Prior to construction**, Rio Grande and Rio Bravo shall file documentation with the Secretary, for review and written approval by the Director of OEP, demonstrating how Rio Grande's and Rio Bravo's commitments (as referenced in Final EIS sections 4.7.1.1, 4.7.1.2, 4.7.1.4, 4.7.2.1 and 4.7.3) to implement agency recommended monitoring, avoidance, and mitigation measures for federal and state-listed species have been incorporated into Rio Grande and Rio Bravo's

environmental training program. (*section 4.7.1.1*)

26. **Prior to construction of the LNG Terminal**, Rio Grande shall conduct training for construction and operational employees that includes the identification, treatment, and reporting protocols for the West Indian manatee. Training materials shall be developed in coordination with the FWS. (*section 4.7.1.2*)
27. **Prior to construction of each pipeline and the LNG Terminal**, Rio Grande and Rio Bravo shall file with the Secretary documentation confirming that they obtained updated records of active northern aplomado falcon nests from The Peregrine Fund for the appropriate breeding season and consulted with the FWS to determine if any additional mitigation is warranted based on the new nest data. Rio Grande and Rio Bravo shall also consult with the FWS on the project-specific northern aplomado falcon Best Management Practices (BMPs), and file with the Secretary the FWS comments and any BMP modifications, for review and written approval by the Director of OEP. (*section 4.7.1.3*)
28. **Prior to construction of the Rio Bravo Pipeline**, Rio Bravo shall file with the Secretary, the results of its completed surveys for the black lace cactus, slender rush-pea, and south Texas ambrosia as well as any comments from the FWS regarding the results. If applicable, Rio Bravo shall include in its filing avoidance/minimization measures that it will implement if individual plants are found, developed in consultation with the FWS, for review and written approval by the Director of OEP. (*section 4.7.1.6*)
29. **Prior to construction**, Rio Grande and Rio Bravo shall consult with the TPWD, and file with the Secretary copies of this consultation, to specifically identify locations of sensitive habitat that may warrant the restriction of synthetic mesh/netted erosion control materials. The specific areas warranting restriction of synthetic erosion control materials, shall be filed with the Secretary, for review and written approval by the Director of OEP. (*section 4.7.2.1*)
30. **Prior to construction of the LNG Terminal**, Rio Grande shall file with the Secretary, for review and written approval by the Director of OEP, (1) its proposed mitigation measures to avoid or minimize take of bottlenose dolphins during in-water pile-driving (including the potential for entrapment behind sheet pilings) at the LNG Terminal site, developed in consultation with NMFS; and (2) if applicable, a copy of its Marine Mammal Protection Act Incidental Take Authorization. (*section 4.7.2.2*)
31. **Prior to construction**, Rio Grande and Rio Bravo shall file with the Secretary a determination from the Texas Coastal Coordination Advisory Committee that their respective project is consistent with the laws and rules of the Texas Coastal Zone Management Program. (*section 4.8.3*)

32. **Prior to construction of the Rio Bravo Pipeline**, Rio Bravo shall file with the Secretary, for review and written approval by the Director of OEP, traffic mitigation procedures, developed in consultation with applicable transportation authorities, to monitor Level-of-Service (LOS) on roadways proposed for use during construction of the pipeline system. These procedures shall describe mitigation measures that will be implemented for a resultant LOS of “C” or below, including alternative routes if necessary. (*section 4.9.9.1*)
33. Rio Grande and Rio Bravo shall **not begin** construction of facilities or use of staging, storage, or temporary work areas and new or to-be-improved access roads **until**:
- a. Rio Grande and Rio Bravo file with the Secretary:
 - i. outstanding State Historic Preservation Officer (SHPO) comments on reports, plans, special studies, or information provided to date, as well as any National Park Service comments, as applicable;
 - ii. any outstanding updates, reports, plans, or special studies, and the SHPO’s comments on these, as well as any National Park Service comments, as applicable; and
 - iii. any necessary treatment plans or site-specific avoidance/protection plans, and the SHPO’s comments on the plans.
 - b. The Advisory Council on Historic Preservation is afforded an opportunity to comment if historic properties will be adversely affected.
 - c. FERC staff reviews and the Director of OEP approves all cultural resources survey reports and plans, and notifies Rio Grande and Rio Bravo in writing that construction may proceed.

All material filed with the Commission containing location, character, and ownership information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: “**CUI/PRIV – DO NOT RELEASE.**” (*section 4.10.5*)

34. Rio Grande shall monitor pile-driving activities, and file **weekly** noise data with the Secretary **following the start of pile-driving activities** that identify the noise impact on the nearest noise-sensitive areas (NSAs). If any measured noise impacts (L_{max}) at the nearest NSAs are greater than 10 decibels on the A-weighted scale (dBA) over the ambient equivalent sound level (L_{eq}), Rio Grande shall:
- a. cease pile-driving activities and implement noise mitigation measures; and
 - b. file with the Secretary evidence of noise mitigation installation and request written notification from the Director of OEP that pile-driving may resume. (*section 4.11.2.3*)

35. Rio Grande shall file a full power load noise survey with the Secretary for the LNG Terminal **no later than 60 days** after each liquefaction train is placed into service. If the noise attributable to operation of the equipment at the LNG Terminal and Compressor Station 3 exceeds a day-night sound level (L_{dn}) of 55 dBA at the nearest NSA, **within 60 days** Rio Grande shall modify operation of the liquefaction facilities or install additional noise controls until a noise level below an L_{dn} of 55 dBA at the NSA is achieved. Rio Grande shall confirm compliance with the above requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls. (*section 4.11.2.3*)
36. Rio Grande shall file a noise survey with the Secretary **no later than 60 days** after placing the entire LNG Terminal, including the Compressor Station 3, into service. If a full load condition noise survey is not possible, Rio Grande shall provide an interim survey at the maximum possible horsepower load **within 60 days** of placing the LNG Terminal and Compressor Station 3 into service and provide the full load survey **within 6 months**. If the noise attributable to operation of the equipment at the LNG Terminal and Compressor Station 3 exceeds an L_{dn} of 55 dBA at the nearest NSA under interim or full horsepower load conditions, Rio Grande shall file a report on what changes are needed and shall install the additional noise controls to meet the level **within 1 year** of the in-service date. Rio Grande shall confirm compliance with the above requirement by filing an additional noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls. (*section 4.11.2.3*)
37. **Prior to construction of HDDs at MPs 82.0, 92.0, 93.0, 99.8, 101.2, 102.0, and 118.7**, Rio Bravo shall file with the Secretary, for review and written approval by the Director of OEP, an HDD noise mitigation plan to reduce noise levels attributable to the proposed drilling operations. The noise mitigation plan shall identify all reasonable measures Rio Bravo will implement to reduce noise levels attributable to the proposed drilling operations to no more than an L_{dn} of 55 dBA at NSAs, and the resulting noise levels at each NSA with mitigation. (*section 4.11.2.3*)
38. Rio Bravo shall file a noise survey with the Secretary **no later than 60 days** after each set of compressor units at Compressor Stations 1 and 2, and Booster Stations 1 and 2 are placed in service. If a full load condition noise survey is not possible, Rio Bravo shall provide an interim survey at the maximum possible horsepower load **within 60 days** of placing the phased station into service and provide the full load survey **within 6 months**. If the noise attributable to the operation of all of the equipment at any of the facilities under interim or full horsepower load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, Rio Bravo shall file a report on what additional noise controls are needed and shall install the additional noise controls to meet the level **within 1 year** of the in-service date. Rio Bravo

shall confirm compliance with the above requirement by filing an additional noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls. (*section 4.11.2.3*)

39. **Prior to pipeline construction across, in, or adjacent to the Union Pacific Railroad Company right-of-way**, Rio Bravo shall file with the Secretary, for review and written approval by the Director of OEP, details concerning the pipeline construction under the railroad, including the depth of cover for the pipeline under the railroad, correspondence with the Union Pacific Railroad Company regarding construction and operation of the pipeline under and parallel to the railroad, and the specific federal and state regulations that Rio Bravo will follow to ensure safety and reliability of the pipeline operations in or under the railroad right-of-way. (*section 4.12.2*)
40. **Prior to initial site preparation**, Rio Grande shall file with the Secretary documentation demonstrating LNG marine vessels will be no higher than existing ship traffic or it has received a determination of no hazard (with or without conditions) by the U.S. Department of Transportation (DOT) Federal Aviation Administration (FAA) for mobile objects that might exceed the height requirements in 14 C.F.R. § 77.9. (*section 4.12.1.7*)
41. **Prior to initial site preparation**, Rio Grande shall file with the Secretary a plan to conduct a supplemental geotechnical investigation for all four LNG Tanks and piperack along the south face of the facility, including a geotechnical investigation location plan with spacing of no more than 300 feet, a minimum of five equally distributed borings, cone penetration tests, and/or seismic cone penetration tests to a depth of at least 100 feet or refusal underneath the locations of each LNG storage tank, and field sampling methods and laboratory tests that are at least as comprehensive as the existing geotechnical investigations. In addition, the geotechnical investigations and report must demonstrate soil modifications and foundation designs will be similar to areas already investigated. (*section 4.12.1.7*)
42. **Prior to construction of final design**, Rio Grande shall file with the Secretary correspondence with the DOT on the use of normally closed valves to remove stormwater from local bunds and curbed areas. (*section 4.12.1.7*)
43. **Prior to construction of final design**, Rio Grande shall file with the Secretary the following information, stamped and sealed by the professional engineer-of-record, registered in Texas:
 - a. site preparation drawings and specifications;
 - b. LNG storage tank and foundation design drawings and calculations;
 - c. LNG Terminal structures and foundation design drawings and calculations;

- d. seismic specifications for procured Seismic Category I equipment prior to the issuing of requests for quotations; and
- e. quality control procedures to be used for civil/structural design and construction.

In addition, Rio Grande shall file, in its Implementation Plan, the schedule for producing this information. (*section 4.12.1.7*)

- 44. **Prior to construction of final design**, Rio Grande shall file with the Secretary design information adopting the recommendations presented by Fugro Consultants, Inc. to minimize the impacts of the identified surface growth fault in the southwestern portion of the LNG Terminal, stamped and sealed by the professional engineer-of-record registered in Texas. (*section 4.12.1.7*)
- 45. **Prior to commencement of service**, Rio Grande shall file with the Secretary a monitoring and maintenance plan, stamped and sealed by the professional engineer-of-record registered in Texas, for the perimeter levee which ensures the crest elevation relative to mean sea level will be maintained for the life of the facility considering berm settlement, subsidence, and sea level rise. (*section 4.12.1.7*)

Conditions 46 through 139 shall apply to the Rio Grande LNG Terminal facilities. Information pertaining to these specific conditions shall be filed with the Secretary for review and written approval by the Director of OEP, or the Director's designee, within the timeframe indicated by each condition. Specific engineering, vulnerability, or detailed design information meeting the criteria specified in Order No. 833 (Docket No. RM16-15-000), including security information, shall be submitted as critical energy infrastructure information pursuant to 18 C.F.R. § 388.113. *See Critical Electric Infrastructure Security and Amending Critical Energy Infrastructure Information*, Order No. 833, 81 Fed. Reg. 93,732 (Dec. 21, 2016), FERC Stats. & Regs. 31,389 (2016). Information pertaining to items such as offsite emergency response, procedures for public notification and evacuation, and construction and operating reporting requirements will be subject to public disclosure. All information must be **filed a minimum of 30 days** before approval to proceed is requested.

- 46. **Prior to initial site preparation**, Rio Grande shall develop and implement procedures to monitor rocket launch activity and to position onsite construction crews and plant personnel in areas that are unlikely to be impacted by rocket debris of a failed launch during initial moments of rocket launch activity from the Brownsville SpaceX facility. Rio Grande's procedures for positioning of onsite construction crews and plant personnel shall include reference to any guidance from the FAA to the public regarding anticipated SpaceX launches. (*section 4.12.1.7*)

47. **Prior to initial site preparation**, Rio Grande shall file calculations demonstrating the loads on buried pipelines and utilities at temporary crossings will be adequately distributed. The analysis shall be based on American Petroleum Institute (API) RP 1102 or other approved methodology. (*section 4.12.1.7*)
48. **Prior to initial site preparation**, Rio Grande shall file pipeline and utility damage prevention procedures for personnel and contractors. The procedures shall include provisions to mark buried pipelines and utilities prior to any site work and subsurface activities. (*section 4.12.1.7*)
49. **Prior to initial site preparation**, Rio Grande shall file an overall project schedule, which includes the proposed stages of the commissioning plan. (*section 4.12.1.7*)
50. **Prior to initial site preparation**, Rio Grande shall file quality assurance and quality control procedures for construction activities. (*section 4.12.1.7*)
51. **Prior to initial site preparation**, Rio Grande shall file procedures for controlling access during construction. (*section 4.12.1.7*)
52. **Prior to initial site preparation**, Rio Grande shall file its design wind speed criteria for all other facilities not covered by DOT Pipeline Hazardous Materials Safety Administration (PHMSA) Letter of Determination to be designed to withstand wind speeds commensurate with the risk and reliability associated with the facilities in accordance with ASCE 7-16 or equivalent. (*section 4.12.1.7*)
53. **Prior to initial site preparation**, Rio Grande shall develop an Emergency Response Plan (ERP) (including evacuation) and coordinate procedures with the U.S. Coast Guard (Coast Guard); state, county, and local emergency planning groups; fire departments; state and local law enforcement; and appropriate federal agencies. This plan shall include at a minimum:
 - a. designated contacts with state and local emergency response agencies;
 - b. scalable procedures for the prompt notification of appropriate local officials and emergency response agencies based on the level and severity of potential incidents;
 - c. procedures for notifying residents and recreational users within areas of potential hazard;
 - d. evacuation routes/methods for residents and public use areas that are within any transient hazard areas along the route of the LNG marine transit;
 - e. locations of permanent sirens and other warning devices; and

- f. an “emergency coordinator” on each LNG marine vessel to activate sirens and other warning devices.

Rio Grande shall notify FERC staff of all planning meetings in advance and shall report progress on the development of its ERP at **3-month intervals**. (*section 4.12.1.7*)

54. **Prior to initial site preparation**, Rio Grande shall file a Cost-Sharing Plan identifying the mechanisms for funding all project-specific security/emergency management costs that will be imposed on state and local agencies. This comprehensive plan shall include funding mechanisms for the capital costs associated with any necessary security/emergency management equipment and personnel base. Rio Grande shall notify Commission staff of all planning meetings in advance and shall report progress on the development of its Cost-Sharing Plan at **3-month intervals**. (*section 4.12.1.7*)
55. **Prior to construction of final design**, Rio Grande shall file calculations demonstrating the loads on buried pipelines and utilities at permanent crossings will be adequately distributed. The analysis shall be based on API RP 1102 or other approved methodology. (*section 4.12.1.7*)
56. **Prior to construction of final design**, Rio Grande shall file change logs that list and explain any changes made from the front end engineering design provided in Rio Grande’s application and filings. A list of all changes with an explanation for the design alteration shall be provided and all changes shall be clearly indicated on all diagrams and drawings. Records of changes must be kept so Commission staff can verify during construction inspections. (*section 4.12.1.7*)
57. **Prior to construction of final design**, Rio Grande shall file information/revisions pertaining to Rio Grande’s response numbers 5, 6, 7, 8, 14, 19, 22, 24, 25, 31, and 44 of its October 20, 2016 filing, which indicated features to be included or considered in the final design. (*section 4.12.1.7*)
58. **Prior to construction of final design**, Rio Grande shall file a plot plan of the final design showing all major equipment, structures, buildings, and impoundment systems. (*section 4.12.1.7*)
59. **Prior to construction of final design**, Rio Grande shall file three-dimensional plant drawings to confirm plant layout for maintenance, access, egress, and congestion. (*section 4.12.1.7*)
60. **Prior to construction of final design**, Rio Grande shall file an up-to-date equipment list, process and mechanical data sheets, and specifications. The specifications shall include:

- a. building specifications (e.g., control buildings, electrical buildings, compressor buildings, storage buildings, pressurized buildings, ventilated buildings, blast resistant buildings);
 - b. mechanical specifications (e.g., piping, valve, insulation, rotating equipment, heat exchanger, storage tank and vessel, other specialized equipment);
 - c. electrical and instrumentation specifications (e.g., power system, control system, safety instrument system [SIS], cable, other electrical and instrumentation); and
 - d. security and fire safety specifications (e.g., security, passive protection, hazard detection, hazard control, firewater). (*section 4.12.1.7*)
61. **Prior to construction of final design**, Rio Grande shall file a list of all codes and standards and the final specification document number where they are referenced. (*section 4.12.1.7*)
62. **Prior to construction of final design**, Rio Grande shall file complete specifications and drawings of the proposed LNG tank design and installation. (*section 4.12.1.7*)
63. **Prior to construction of final design**, Rio Grande shall file the design specifications and drawings for the feed gas inlet facilities (e.g., metering, pigging system, pressure protection system, compression, etc.). (*section 4.12.1.7*)
64. **Prior to construction of final design**, Rio Grande shall file up-to-date Process Flow Diagrams (PFDs) and Piping and Instrument Diagrams (P&IDs) including vendor P&IDs. The PFDs shall include heat and material balances. The P&IDs shall include the following information:
- a. equipment tag number, name, size, duty, capacity, and design conditions;
 - b. equipment insulation type and thickness;
 - c. storage tank pipe penetration size and nozzle schedule;
 - d. valve high pressure side and internal and external vent locations;
 - e. piping with line number, piping class specification, size, and insulation type and thickness;
 - f. piping specification breaks and insulation limits;
 - g. all control and manual valves numbered;

- h. relief valves with size and set points; and
 - i. drawing revision number and date. (*section 4.12.1.7*)
65. **Prior to construction of final design**, Rio Grande shall file P&IDs, specifications, and procedures that clearly show and specify the tie-in details required to safely connect subsequently constructed facilities with the operational facilities. (*section 4.12.1.7*)
66. **Prior to construction of final design**, Rio Grande shall file a car seal philosophy and a list of all car-sealed and locked valves consistent with the P&IDs. (*section 4.12.1.7*)
67. **Prior to construction of final design**, and at the onset of detailed engineering, Rio Grande shall complete a preliminary hazard and operability review of the proposed design. A copy of the review, a list of recommendations, and actions taken on the recommendations shall be filed. (*section 4.12.1.7*)
68. **Prior to construction of final design**, Rio Grande shall file a hazard and operability review prior to issuing the P&IDs for construction. A copy of the review, a list of the recommendations, and actions taken on the recommendations shall be filed. (*section 4.12.1.7*)
69. **Prior to construction of final design**, Rio Grande shall file an evaluation of the need for additional check valves and relief valves in the truck LNG fill line. (*section 4.12.1.7*)
70. **Prior to construction of final design**, Rio Grande shall file the safe operating limits (upper and lower), alarm and shutdown set points for all instrumentation (i.e., temperature, pressures, flows, and compositions). (*section 4.12.1.7*)
71. **Prior to construction of final design**, Rio Grande shall file cause-and-effect matrices for the process instrumentation, fire and gas detection system, and emergency shutdown system. The cause-and-effect matrices shall include alarms and shutdown functions, details of the voting and shutdown logic, and set points. (*section 4.12.1.7*)
72. **Prior to construction of final design**, Rio Grande shall file an evaluation of the emergency shutdown valve closure times. The evaluation shall account for the time to detect an upset or hazardous condition, notify plant personnel, and close the emergency shutdown valve(s). (*section 4.12.1.7*)
73. **Prior to construction of final design**, Rio Grande shall file an evaluation of dynamic pressure surge effects from valve opening and closure times and pump

operations that demonstrate that the surge effects do not exceed the design pressures. (*section 4.12.1.7*)

74. **Prior to construction of final design**, Rio Grande shall demonstrate that, for hazardous fluids, piping and piping nipples 2 inches or less in diameter are designed to withstand external loads, including vibrational loads in the vicinity of rotating equipment and operator live loads in areas accessible by operators. (*section 4.12.1.7*)
75. **Prior to construction of final design**, Rio Grande shall file electrical area classification drawings that reflect additional hazardous classification areas where the heat transfer fluid would be processed above its flash point (e.g., near the heat medium heaters) and at areas of fuel gas piping (e.g., fired heaters), including areas where equipment could be exposed to flammable gas during a purge cycle of a fired heater. (*section 4.12.1.7*)
76. **Prior to construction of final design**, Rio Grande shall file drawings and details of how process seals or isolations installed at the interface between a flammable fluid system and an electrical conduit or wiring system meet the requirements of National Fire Protection Association Standard 59A (NFPA 59A) (2001). (*section 4.12.1.7*)
77. **Prior to construction of final design**, Rio Grande shall file details of an air gap or vent installed downstream of process seals or isolations installed at the interface between a flammable fluid system and an electrical conduit or wiring system. Each air gap shall vent to a safe location and be equipped with a leak detection device that shall continuously monitor for the presence of a flammable fluid, alarm the hazardous condition, and shut down the appropriate systems. (*section 4.12.1.7*)
78. **Prior to construction of final design**, Rio Grande shall file drawings of the storage tank piping support structure and support of horizontal piping at grade including pump columns, relief valves, pipe penetrations, instrumentation, and appurtenances. (*section 4.12.1.7*)
79. **Prior to construction of final design**, Rio Grande shall include LNG storage tank fill flow measurement with high flow alarm. (*section 4.12.1.7*)
80. **Prior to construction of final design**, Rio Grande shall include boil-off gas flow measurement from each LNG storage tank. (*section 4.12.1.7*)
81. **Prior to construction of final design**, Rio Grande shall file the structural analysis of the LNG storage tank and outer containment demonstrating they are designed to withstand all loads and combinations. (*section 4.12.1.7*)

82. **Prior to construction of final design**, Rio Grande shall file an analysis of the structural integrity of the outer containment of the full containment LNG storage tank demonstrating it can withstand the radiant heat from a roof tank top fire or adjacent tank roof fire. (*section 4.12.1.7*)
83. **Prior to construction of final design**, Rio Grande shall file a projectile analysis to demonstrate that the outer concrete impoundment wall of the full-containment LNG tank could withstand projectiles from explosions and high winds. The analysis shall detail the projectile speeds and characteristics and method used to determine penetration or perforation depths. (*section 4.12.1.7*)
84. **Prior to construction of final design**, Rio Grande shall file the sizing basis and capacity for the final design of the flares and/or vent stacks as well as the pressure and vacuum relief valves for major process equipment, vessels, and storage tanks. (*section 4.12.1.7*)
85. **Prior to construction of final design**, Rio Grande shall file a drawing showing the location of the emergency shutdown buttons. Emergency shutdown buttons shall be easily accessible, conspicuously labeled, and located in an area which will be accessible during an emergency. (*section 4.12.1.7*)
86. **Prior to construction of final design**, Rio Grande shall specify that all Emergency Shutdown valves will be equipped with open and closed position switches connected to the Distributed Control System/Safety Instrumented System. (*section 4.12.1.7*)
87. **Prior to construction of final design**, and prior to injecting corrosion inhibitors into the 42-inch-diameter pipeline at any time during the life of the plant, Rio Grande shall file the information used to determine that an inhibitor is required, the material data sheet for the inhibitor, the amount injected, and the schedule of injections. (*section 4.12.1.7*)
88. **Prior to construction of final design**, the feed gas flow to the Inlet Gas/Gas Exchanger (E-1701) shall include a high temperature alarm and shutdown to protect from exposure to hot feed gas. (*section 4.12.1.7*)
89. **Prior to construction of final design**, the De-ethanizer (C-1701) shall include an additional cryogenic manual isolation valve downstream of shutoff valve (XV-117011). (*section 4.12.1.7*)
90. **Prior to construction of final design**, Rio Grande shall equip a low-low temperature shutdown on the temperature transmitter (TT-117014) located on the De-ethanizer bottoms discharge piping to detect temperatures that may reach below the minimum design metal temperature of the discharge piping transition

- from stainless to carbon steel. This shutdown shall include isolation under cryogenic conditions. (*section 4.12.1.7*)
91. **Prior to construction of final design**, Rio Grande shall file an explanation and justification for the dump lines located upstream of each LNG Loading Arm. (*section 4.12.1.7*)
 92. **Prior to construction of final design**, Rio Grande shall file the complete range of anti-surge recycle conditions on the LP MR Compressor to confirm that the minimum temperature conditions will not require stainless steel piping. (*section 4.12.1.7*)
 93. **Prior to construction of final design**, Rio Grande shall specify the set pressure of high pressure alarm (PAH-141002) is to be below the set pressure of regulator PCV-141005 on the Hot Oil Expansion Drum. (*section 4.12.1.7*)
 94. **Prior to construction of final design**, Rio Grande shall file the design details of the shelters to verify safe access in all weather conditions. (*section 4.12.1.7*)
 95. **Prior to construction of final design**, Rio Grande shall file drawings and specifications for crash rated vehicle barriers at each facility entrance for access control. (*section 4.12.1.7*)
 96. **Prior to construction of final design**, Rio Grande shall file drawings of the security fence. The fencing drawings shall provide details of fencing that demonstrates it will restrict and deter access around the entire facility and has a setback from exterior features (e.g., power lines, trees, etc.) and from interior features (e.g., piping, equipment, buildings, etc.) that does not allow the fence to be overcome. (*section 4.12.1.7*)
 97. **Prior to construction of final design**, Rio Grande shall file security camera and intrusion detection drawings. The security camera drawings shall show the locations, areas covered, and features of each camera (e.g., fixed, tilt/pan/zoom, motion detection alerts, low light, mounting height, etc.) to verify camera coverage of the entire perimeter with redundancies, and cameras interior to the facility that will enable rapid monitoring of the terminal, including a camera at the top of each LNG storage tank, and coverage within pretreatment areas, within liquefaction areas, within truck transfer areas, within marine transfer areas, and buildings. The drawings shall show or note the location of the intrusion detection to verify it covers the entire perimeter of the terminal. (*section 4.12.1.7*)
 98. **Prior to construction of final design**, Rio Grande shall file lighting drawings. The lighting drawings shall show the location, elevation, type of light fixture, and lux levels of the lighting system and shall be in accordance with API 540 and

provide illumination along the entire perimeter of the facility, process equipment, mooring points, and along paths/roads of access and egress to facilitate security monitoring and emergency response operations. The lighting drawings shall address the issues raised in condition 22. (*section 4.12.1.7*)

99. **Prior to construction of final design**, Rio Grande shall evaluate the terminal alarm system and external notification system design to ensure the location of the terminal alarms and other fire and evacuation alarm notification devices (e.g. audible/visual beacons and strobes) will provide adequate warning at the terminal and external off-site areas in the event of an emergency. (*section 4.12.1.7*)
100. **Prior to construction of final design**, Rio Grande shall file an updated fire protection evaluation of the proposed facilities. A copy of the evaluation, a list of recommendations and supporting justifications, and actions taken on the recommendations shall be filed. The evaluation shall justify the type, quantity, and location of hazard detection and hazard control, passive fire protection, emergency shutdown and depressurizing systems, firewater, and emergency response equipment, training, and qualifications in accordance with NFPA 59A (2001). The justification for the flammable and combustible gas detection and flame and heat detection shall be in accordance with International Society of Automation (ISA) 84.00.07 or equivalent methodologies that will demonstrate 90 percent or more of releases (unignited and ignited) that could result in an off-site or cascading impact will be detected by two or more detectors and result in isolation and de-inventory within 10 minutes. The analysis shall take into account the set points, voting logic, wind speeds, and wind directions. The justification for firewater shall provide calculations for all firewater demands (including firewater coverage on the LNG storage tanks) based on design densities, surface area, and throw distance and specifications for the corresponding hydrant and monitors needed to reach and cool equipment. (*section 4.12.1.7*)
101. **Prior to construction of final design**, Rio Grande shall file spill containment system drawings with dimensions and slopes of curbing, trenches, impoundments, and capacity calculations considering any foundations and equipment within impoundments, as well as the sizing and design of the down-comer that will transfer spills from the tank top to the ground-level impoundment system. The spill containment drawings shall show containment for all hazardous fluids, including all liquids handled above their flashpoint, from the largest flow from a single line for 10 minutes, including de-inventory, or the maximum liquid from the largest vessel (or total of impounded vessels) or otherwise demonstrate that providing spill containment will not significantly reduce the flammable vapor dispersion or radiant heat consequences of a spill. In addition, Rio Grande shall demonstrate that the stainless steel piping spill trays at each LNG storage tank

- will withstand the force and shock of a sudden cryogenic release. (*section 4.12.1.7*)
102. **Prior to construction of final design**, Rio Grande shall file an analysis demonstrating the side on overpressures will be less than 1 pound per square inch (psi) at the LNG storage tanks and the condensate storage tanks, or demonstrating the tanks will be able to withstand overpressures within the terminal. (*section 4.12.1.7*)
103. **Prior to construction of final design**, Rio Grande shall file complete drawings and a list of the hazard detection equipment. The drawings shall clearly show the location and elevation of all detection equipment. The list shall include the instrument tag number, type and location, alarm indication locations, and shutdown functions of the hazard detection equipment. (*section 4.12.1.7*)
104. **Prior to construction of final design**, Rio Grande shall file a list of alarm and shutdown set points for all hazard detectors that account for the calibration gas of the hazard detectors when determining the lower flammable limit set points for methane, propane, ethane/ethylene, and condensate. (*section 4.12.1.7*)
105. **Prior to construction of final design**, Rio Grande shall file a list of alarm and shutdown set points for all hazard detectors that account for the calibration gas of hazard detectors when determining the set points for toxic components such as natural gas liquids and hydrogen sulfide. (*section 4.12.1.7*)
106. **Prior to construction of final design**, Rio Grande shall file a technical review of facility design that:
- a. identifies all combustion/ventilation air intake equipment and the distances to any possible flammable gas or toxic release; and
 - b. demonstrates that these areas are adequately covered by hazard detection devices and indicates how these devices will isolate or shut down any combustion or heating ventilation and air conditioning equipment whose continued operation could add to or sustain an emergency. (*section 4.12.1.7*)
107. **Prior to construction of final design**, Rio Grande shall file an analysis of the off gassing of hydrogen in battery rooms and ventilation calculations that limit concentrations below the lower flammability limits (LFL) (e.g., 25 percent LFL) and shall also provide hydrogen detectors that alarm (e.g., 20 to 25 percent LFL) and initiate mitigative actions (e.g., 40 to 50 percent LFL). (*section 4.12.1.7*)
108. **Prior to construction of final design**, Rio Grande shall file plan drawings and a list of the fixed and wheeled dry-chemical, hand-held fire extinguishers, and other hazard control equipment. Plan drawings shall clearly show the location and

elevation by tag number of all fixed dry chemical systems in accordance with NFPA 17, wheeled and hand-held extinguishers location travel distances are along normal paths of access and egress in accordance with NFPA 10. The list shall include the equipment tag number, type, capacity, equipment covered, discharge rate, and automatic and manual remote signals initiating discharge of the units. (*section 4.12.1.7*)

109. **Prior to construction of final design**, Rio Grande shall file a design that includes clean agent systems in the instrumentation buildings and electrical substations. (*section 4.12.1.7*)
110. **Prior to construction of final design**, Rio Grande shall file facility plan drawings showing the proposed location of the firewater and any foam systems. Plan drawings shall clearly show the location of firewater and foam piping, post indicator valves, and the location and area covered by each monitor, hydrant, hose, water curtain, deluge system, foam system, water mist system, and sprinkler. The drawings shall also include piping and instrumentation diagrams of the firewater and foam systems. In addition, firewater coverage shall include the coverage of each LNG storage tank. (*section 4.12.1.7*)
111. **Prior to construction of final design**, Rio Grande shall demonstrate that the firewater tank would be in compliance with NFPA 22 or demonstrate how API 650 provides an equivalent or better level of safety. (*section 4.12.1.7*)
112. **Prior to construction of final design**, Rio Grande shall specify that the firewater flow test meter is equipped with a transmitter and that a pressure transmitter is installed upstream of the flow transmitter. The flow transmitter and pressure transmitter shall be connected to the Distributed Control System and recorded. (*section 4.12.1.7*)
113. **Prior to construction of final design**, Rio Grande shall specify the dimension ratio (DR) to be DR 7 for the high density polyethylene piping to allow consistent pressure rating requirements with the firewater system. (*section 4.12.1.7*)
114. **Prior to construction of final design**, Rio Grande shall file drawings and specifications for the structural passive protection systems to protect equipment and supports from cryogenic releases. (*section 4.12.1.7*)
115. **Prior to construction of final design**, Rio Grande shall file calculations or test results for the structural passive protection systems to demonstrate that equipment and supports are protected from cryogenic releases. (*section 4.12.1.7*)

116. **Prior to construction of final design**, Rio Grande shall file drawings and specifications for the structural passive protection systems demonstrating that equipment and supports are protected from pool and jet fires. (*section 4.12.1.7*)
117. **Prior to construction of final design**, Rio Grande shall file a detailed quantitative analysis to demonstrate that adequate mitigation will be provided for each significant component within the 4,000 British thermal units per square foot per hour (Btu/ft²-hr) zone from pool and jet fires that could cause failure of the component, including the Jetty Monitor Buildings and the LNG Storage and Loading Substation 2. Trucks at the truck loading/unloading areas shall be included in the analysis. A combination of passive and active protection for pool fires and passive and/or active protection for jet fires shall be provided and demonstrate the effectiveness and reliability. Effectiveness of passive mitigation shall be supported by calculations or test results for the thickness limiting temperature rise and effectiveness of active mitigation shall be justified with calculations or test results demonstrating flow rates and durations of any cooling water will mitigate the heat absorbed by the vessel. (*section 4.12.1.7*)
118. **Prior to construction of final design**, Rio Grande shall file an evaluation and associated specifications and drawings of how it will prevent cascading damage of transformers (e.g., firewalls or spacing) in accordance with NFPA 850 or equivalent. (*section 4.12.1.7*)
119. **Prior to construction of final design**, Rio Grande shall file an evaluation of the voting logic and voting degradation for hazard detectors. (*section 4.12.1.7*)
120. **Prior to commissioning**, Rio Grande shall file a detailed schedule for commissioning through equipment startup. The schedule shall include milestones for all procedures and tests to be completed: prior to introduction of hazardous fluids and during commissioning and startup. Rio Grande shall file documentation certifying that each of these milestones has been completed before authorization to commence the next phase of commissioning and startup will be issued. (*section 4.12.1.7*)
121. **Prior to commissioning**, Rio Grande shall file detailed plans and procedures for: testing the integrity of onsite mechanical installation; functional tests; introduction of hazardous fluids; operational tests; and placing the equipment into service. (*section 4.12.1.7*)
122. **Prior to commissioning**, Rio Grande shall file the procedures for pressure/leak tests which address the requirements of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section VIII and ASME B31.3. In addition, Rio Grande shall file a line list of pneumatic and hydrostatic test pressures. (*section 4.12.1.7*)

123. **Prior to commissioning**, Rio Grande shall file a plan for clean-out, dry-out, purging, and tightness testing. This plan shall address the requirements of the American Gas Association's Purging Principles and Practice, and shall provide justification if not using an inert or non-flammable gas for clean-out, dry-out, purging, and tightness testing. (*section 4.12.1.7*)
124. **Prior to commissioning**, Rio Grande shall file the operation and maintenance procedures and manuals, as well as safety procedures, hot work procedures and permits, abnormal operating conditions reporting procedures, simultaneous operations procedures, and management of change procedures and forms. (*section 4.12.1.7*)
125. **Prior to commissioning**, Rio Grande shall tag all equipment, instrumentation, and valves in the field, including drain valves, vent valves, main valves, and car-sealed or locked valves. (*section 4.12.1.7*)
126. **Prior to commissioning**, Rio Grande shall file a plan to maintain a detailed training log to demonstrate that operating, maintenance, and emergency response staff have completed the required training. (*section 4.12.1.7*)
127. **Prior to commissioning**, Rio Grande shall file the settlement results from hydrostatic testing the LNG storage containers as well as a routine monitoring program to ensure settlements are as expected and do not exceed applicable criteria in API 620, API 625, API 653, and American Concrete Institute (ACI) 376. The program shall specify what actions would be taken after seismic events. (*section 4.12.1.7*)
128. **Prior to commissioning**, Rio Grande shall equip the LNG storage tank and adjacent piping and supports with permanent settlement monitors to allow personnel to observe and record the relative settlement between the LNG storage tank and adjacent piping. The settlement record shall be reported in the semi-annual operational reports. (*section 4.12.1.7*)
129. **Prior to introduction of hazardous fluids**, Rio Grande shall complete and document all pertinent tests (e.g., Factory Acceptance Tests, Site Acceptance Tests, Site Integration Tests) associated with the Distributed Control System/Safety Instrumented System that demonstrates full functionality and operability of the system. (*section 4.12.1.7*)
130. **Prior to introduction of hazardous fluids**, Rio Grande shall develop and implement an alarm management program to reduce alarm complacency and maximize the effectiveness of operator response to alarms. (*section 4.12.1.7*)

131. **Prior to introduction of hazardous fluids**, Rio Grande shall develop and implement procedures for plant personnel to monitor the rocket launches from the Brownsville SpaceX facility and take mitigative actions before and after a rocket launch failure to minimize the potential of release reaching offsite areas or resulting in cascading effects that could extend offsite or impact safe operations. (*section 4.12.1.7*)
132. **Prior to introduction of hazardous fluids**, Rio Grande shall complete and document a firewater pump acceptance test and firewater monitor and hydrant coverage test. The actual coverage area from each monitor and hydrant shall be shown on facility plot plan(s). (*section 4.12.1.7*)
133. **Prior to introduction of hazardous fluids**, Rio Grande shall complete and document a pre-startup safety review to ensure that installed equipment meets the design and operating intent of the facility. The pre-startup safety review shall include any changes since the last hazard review, operating procedures, and operator training. A copy of the review with a list of recommendations, and actions taken on each recommendation, shall be filed. (*section 4.12.1.7*)
134. Rio Grande shall file a request for written authorization from the Director of OEP **prior to unloading or loading the first LNG commissioning cargo**. After production of first LNG, Rio Grande shall file **weekly** reports on the commissioning of the proposed systems that detail the progress toward demonstrating the facilities can safely and reliably operate at or near the design production rate. The reports shall include a summary of activities, problems encountered, and remedial actions taken. The weekly reports shall also include the latest commissioning schedule, including projected and actual LNG production by each liquefaction train, LNG storage inventories in each storage tank, and the number of anticipated and actual LNG commissioning cargoes, along with the associated volumes loaded or unloaded. Further, the weekly reports shall include a status and list of all planned and completed safety and reliability tests, work authorizations, and punch list items. Problems of significant magnitude shall be reported to the Commission **within 24 hours**. (*section 4.12.1.7*)
135. **Prior to commencement of service**, Rio Grande shall label piping with fluid service and direction of flow in the field, in addition to the pipe labeling requirements of NFPA 59A (2001). (*section 4.12.1.7*)
136. **Prior to commencement of service**, Rio Grande shall file plans for any preventative and predictive maintenance program that performs periodic or continuous equipment condition monitoring. (*section 4.12.1.7*)

137. **Prior to commencement of service**, Rio Grande shall develop procedures for offsite contractors' responsibilities, restrictions, and limitations and for supervision of these contractors by Rio Grande staff. (*section 4.12.1.7*)
138. **Prior to commencement of service**, Rio Grande shall notify FERC staff of any proposed revisions to the security plan and physical security of the plant. (*section 4.12.1.7*)
139. **Prior to commencement of service**, Rio Grande shall file a request for written authorization from the Director of OEP. Such authorization will only be granted following a determination by the Coast Guard, under its authorities under the Ports and Waterways Safety Act, the Magnuson Act, the Maritime Transportation Security Act of 2002, and the Security and Accountability For Every Port Act, that appropriate measures to ensure the safety and security of the facility and the waterway have been put into place by Rio Grande or other appropriate parties. (*section 4.12.1.7*)

In addition, conditions 140 through 143 shall apply **throughout the life of the Rio Grande LNG Terminal**.

140. The facilities shall be subject to regular FERC staff technical reviews and site inspections on at least an **annual basis** or more frequently as circumstances indicate. Prior to each FERC staff technical review and site inspection, Rio Grande shall respond to a specific data request including information relating to possible design and operating conditions that may have been imposed by other agencies or organizations. Up-to-date detailed P&IDs reflecting facility modifications and provision of other pertinent information not included in the semi-annual reports described below, including facility events that have taken place since the previously submitted semi-annual report, shall be submitted. (*section 4.12.1.7*)
141. **Semi-annual** operational reports shall be filed with the Secretary to identify changes in facility design and operating conditions; abnormal operating experiences; activities (e.g., ship arrivals, quantity and composition of imported and exported LNG, liquefied quantities, boil off/flash gas); and plant modifications, including future plans and progress thereof. Abnormalities shall include, but not be limited to, unloading/loading/shipping problems, potential hazardous conditions from offsite vessels, storage tank stratification or rollover, geysering, storage tank pressure excursions, cold spots on the storage tanks, storage tank vibrations and/or vibrations in associated cryogenic piping, storage tank settlement, significant equipment or instrumentation malfunctions or failures, non-scheduled maintenance or repair (and reasons therefore), relative movement of storage tank inner vessels, hazardous fluids releases, fires involving hazardous fluids and/or from other sources, negative pressure

(vacuum) within a storage tank, and higher than predicted boil off rates. Adverse weather conditions and the effect on the facility also shall be reported. Reports shall be submitted **within 45 days after each period ending June 30 and December 31**. In addition to the above items, a section entitled “Significant Plant Modifications Proposed for the Next 12 Months (dates)” shall be included in the semi-annual operational reports. Such information will provide FERC staff with early notice of anticipated future construction/maintenance at the LNG facilities. (*section 4.12.1.7*)

142. In the event the temperature of any region of any secondary containment, including imbedded pipe supports, becomes less than the minimum specified operating temperature for the material, the Commission shall be notified **within 24 hours** and procedures for corrective action shall be specified. (*section 4.12.1.7*)
143. Significant non-scheduled events, including safety-related incidents (e.g., LNG, condensate, refrigerant, or natural gas releases; fires; explosions; mechanical failures; unusual over pressurization; and major injuries) and security-related incidents (e.g., attempts to enter site; and suspicious activities) shall be reported to FERC staff. In the event that an abnormality is of significant magnitude to threaten public or employee safety, cause significant property damage, or interrupt service, notification shall be made **immediately**, without unduly interfering with any necessary or appropriate emergency repair, alarm, or other emergency procedure. In all instances, notification shall be made to FERC staff **within 24 hours**. This notification practice shall be incorporated into the LNG facility’s emergency plan. Examples of reportable hazardous fluids-related incidents include:
 - a. fire;
 - b. explosion;
 - c. estimated property damage of \$50,000 or more;
 - d. death or personal injury necessitating in-patient hospitalization;
 - e. release of hazardous fluids for 5 minutes or more;
 - f. unintended movement or abnormal loading by environmental causes, such as an earthquake, landslide, or flood, that impairs the serviceability, structural integrity, or reliability of an LNG facility that contains, controls, or processes hazardous fluids;

- g. any crack or other material defect that impairs the structural integrity or reliability of an LNG facility that contains, controls, or processes hazardous fluids;
- h. any malfunction or operating error that causes the pressure of a pipeline or LNG facility that contains or processes hazardous fluids to rise above its maximum allowable operating pressure (or working pressure for LNG facilities) plus the build-up allowed for operation of pressure-limiting or control devices;
- i. a leak in an LNG facility that contains or processes hazardous fluids that constitutes an emergency;
- j. inner tank leakage, ineffective insulation, or frost heave that impairs the structural integrity of an LNG storage tank;
- k. any safety-related condition that could lead to an imminent hazard and cause (either directly or indirectly by remedial action of the operator), for purposes other than abandonment, a 20 percent reduction in operating pressure or shutdown of operation of a pipeline or an LNG facility that contains or processes hazardous fluids;
- l. safety-related incidents from hazardous fluids transportation occurring at or en route to and from the LNG facility; or
- m. an event that is significant in the judgment of the operator and/or management even though it did not meet the above criteria or the guidelines set forth in an LNG facility's incident management plan.

In the event of an incident, the Director of OEP has delegated authority to take whatever steps are necessary to ensure operational reliability and to protect human life, health, property, or the environment, including authority to direct the LNG facility to cease operations. Following the initial company notification, FERC staff would determine the need for a separate follow-up report or follow-up in the upcoming semi-annual operational report. All company follow-up reports shall include investigation results and recommendations to minimize a reoccurrence of the incident. (*section 4.12.1.7*)

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Rio Grande LNG, LLC
Rio Bravo Pipeline Company, LLC

Docket Nos. CP16-454-000
CP16-455-000

(Issued November 22, 2019)

GLICK, Commissioner, *dissenting*:

1. I dissent from today's order because it violates both the Natural Gas Act¹ (NGA) and the National Environmental Policy Act² (NEPA). The Commission once again refuses to consider the consequences its actions have for climate change. Although neither the NGA nor NEPA permit the Commission to assume away the impact that constructing and operating this liquefied natural gas (LNG) facility and associated natural gas pipeline will have on climate change, that is precisely what the Commission is doing here.

2. In today's order authorizing Rio Grande LNG, LLC's (Rio Grande) LNG export facility and associated natural gas pipeline facilities (Project) pursuant to section 3 and section 7 of the NGA, the Commission continues to treat climate change differently than all other environmental impacts. The Commission steadfastly refuses to assess whether the impact of the Project's greenhouse gas (GHG) emissions on climate change is significant, even though it quantifies the GHG emissions caused by the Project.³ That refusal to assess the significance of the Project's contribution to the harm caused by climate change is what allows the Commission to misleadingly state that its approval of the Project will result in environmental impacts that are generally "less-than-significant"⁴

¹ 15 U.S.C. §§ 717b, 717f (2018).

² National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321 *et seq.*

³ *Rio Grande LNG, LLC*, 169 FERC ¶ 61,131, at PP 104–105 (2019) (Certificate Order); Final Environmental Impact Statement at 4-256–4-288 (EIS).

⁴ Certificate Order, 169 FERC ¶ 61,131 at P 24; EIS at ES-19. *But see* Certificate Order, 169 FERC ¶ 61,131 at PP 22, 56, 113, 115 (noting that the Project, in conjunction with the two other LNG facilities in the region approved today, will have significant cumulative impacts on, among other things, federally listed endangered species, including the ocelot and jaguarundi).

and, as a result, conclude that the Project satisfies the NGA's public interest standards.⁵ Claiming that a project generally has no significant environmental impacts while at the same time refusing to assess the significance of the project's impact on the most important environmental issue of our time is not reasoned decisionmaking.

3. In addition, the Commission's public interest analysis also does not adequately weigh or wrestle with the Project's adverse impacts.⁶ Collectively, the three export projects approved for the Brownsville Ship Channel⁷ will have a significant adverse impact on water quality, visual resources, and noise-sensitive areas as well as federally listed endangered species, including the ocelot, jaguarundi, and aplomado falcon. Moreover, all three projects are located in Cameron County, Texas—a region of the country where roughly one third of the population is below the poverty line and a substantial portion is made up of minority groups.⁸ I fully appreciate that the jobs and economic stimulus that a facility like the Project can provide may be especially important in a community facing economic challenges. But we cannot lose sight of the cumulative environmental toll on regions, like Cameron County, from the development of new industrial facilities. Although today's order recites these impacts, I believe that reasoned decisionmaking requires the Commission to affirmatively consider those impacts and explain how it nevertheless reached its public interest determinations. After all, surely considering the public interest requires us to do more than merely recite the significant adverse impacts and proceed to approve the Project.

I. The Commission's Public Interest Determinations Are Not the Product of Reasoned Decisionmaking

4. The NGA's regulation of LNG import and export facilities "implicate[s] a tangled web of regulatory processes" split between the U.S. Department of Energy (DOE) and

⁵ *Id.* at PP 25, 32, 130.

⁶ See EIS at ES-16 – ES-18 (discussing the neighboring Texas Brownsville LNG and Annova LNG projects).

⁷ In addition to Rio Grand LNG, the Commission today is also approving the Annova LNG facility, *Annova LNG Common Infrastructure, LLC*, 169 FERC ¶ 61,132 (2019), and the Texas Brownsville LNG facility, *Texas LNG Brownsville LLC*, 169 FERC ¶ 61,130 (2019).

⁸ EIS at 4-235 (noting that the poverty rate in Cameron County is roughly a third); *id.* 4-236 (noting that three out of the four block groups of land studied were made up of more than 50 percent minority populations).

the Commission.⁹ The NGA establishes a general presumption favoring the import and export of LNG unless there is an affirmative finding that the import or export “will not be consistent with the public interest.”¹⁰ Section 3 of the NGA provides for two independent public interest determinations: One regarding the import or export of LNG itself and one regarding the facilities used for that import or export. DOE determines whether the import or export of LNG is consistent with the public interest, with transactions among free trade countries legislatively deemed to be “consistent with the public interest.”¹¹ The Commission evaluates whether “an application for the siting, construction, expansion, or operation of an LNG terminal” is itself consistent with the public interest.¹² Pursuant to that authority, the Commission must approve a proposed

⁹ *Sierra Club v. FERC*, 827 F.3d 36, 40 (D.C. Cir. 2016) (*Freeport*).

¹⁰ 15 U.S.C. § 717b(a); *see EarthReports, Inc. v. FERC*, 828 F.3d 949, 953 (D.C. Cir. 2016) (citing *W. Va. Pub. Servs. Comm’n v. Dep’t of Energy*, 681 F.2d 847, 856 (D.C. Cir. 1982) (“NGA [section] 3, unlike [section] 7, ‘sets out a general presumption favoring such authorization.’”)). Under section 7 of the NGA, the Commission approves a proposed pipeline if it is shown to be consistent with the public interest, while under section 3, the Commission approves a proposed LNG import or export facility unless it is shown to be inconsistent with the public interest. *Compare* 15 U.S.C. §717b(a) *with* 15 U.S.C. §717f(a), (e).

¹¹ 15 U.S.C. § 717b(c). The courts have explained that, because the authority to authorize the LNG exports rests with DOE, NEPA does not require the Commission to consider the upstream or downstream GHG emissions that may be indirect effects of the export itself when determining whether the related LNG export facility satisfies section 3 of the NGA. *See Freeport*, 827 F.3d at 46-47; *see also Sierra Club v. FERC*, 867 F.3d 1357, 1373 (D.C. Cir. 2017) (*Sabal Trail*) (discussing *Freeport*). Nevertheless, NEPA requires that the Commission consider the direct GHG emissions associated with a proposed LNG export facility. *See Freeport*, 827 F.3d at 41, 46.

¹² 15 U.S.C. § 717b(e). In 1977, Congress transferred the regulatory functions of NGA section 3 to DOE. DOE, however, subsequently delegated to the Commission authority to approve or deny an application for the siting, construction, expansion, or operation of an LNG terminal, while retaining the authority to determine whether the import or export of LNG to non-free trade countries is in the public interest. *See EarthReports*, 828 F.3d at 952-53.

LNG facility unless the record shows that the facility would be inconsistent with the public interest.¹³

5. As part of that determination, the Commission examines a proposed facility's impact on the environment and public safety. A facility's impact on climate change is one of the environmental impacts that must be part of a public interest determination under the NGA.¹⁴ Nevertheless, the Commission maintains that it need not consider whether the Project's contribution to climate change is significant in this order because it lacks a means to do so—or at least so it claims.¹⁵ However, the most troubling part of the Commission's rationale is what comes next. Based on this alleged inability to assess the significance of the Project's impact on climate change, the Commission concludes that the Project's environmental impacts would generally be reduced to “less-than-significant” levels.¹⁶ Think about that. The Commission is saying out of one side of its mouth that it cannot assess the significance of the Project's impact on climate change¹⁷ while, out of the other side of its mouth, assuring us that its environmental impacts are generally not significant.¹⁸ That is ludicrous, unreasoned, and an abdication of our responsibility to give climate change the “hard look” that the law demands.¹⁹

¹³ See *Freeport*, 827 F.3d at 40-41.

¹⁴ See *Sabal Trail*, 867 F.3d at 1373 (explaining that the Commission must consider a pipeline's direct and indirect GHG emissions because the Commission may “deny a pipeline certificate on the ground that the pipeline would be too harmful to the environment”); see also *Atl. Ref. Co. v. Pub. Serv. Comm'n of N.Y.*, 360 U.S. 378, 391 (1959) (holding that the NGA requires the Commission to consider “all factors bearing on the public interest”).

¹⁵ Certificate Order, 169 FERC ¶ 61,131 at PP 105–106; EIS at 4-481–4-482.

¹⁶ Certificate Order, 169 FERC ¶ 61,131 at P 56; EIS at ES-19.

¹⁷ Certificate Order, 169 FERC ¶ 61,131 at PP 105–106; EIS 4-482 (“[W]e are unable to determine the significance of the Project's contribution to climate change.”).

¹⁸ Certificate Order, 169 FERC ¶ 61,131 at P 56 (stating that, with few exceptions and not considering cumulative impacts, the Project's environmental impact will be “reduced to less-than-significant levels”).

¹⁹ See, e.g., *Myersville Citizens for a Rural Cmty., Inc. v. FERC*, 783 F.3d 1301, 1322 (D.C. Cir. 2015) (explaining that agencies cannot overlook a single environmental consequence if it is even “arguably significant”); see also *Michigan v. EPA*, 135 S. Ct.

6. It also means that the Project's impact on climate change does not play a meaningful role in the Commission's public interest determination, no matter how often the Commission assures us that it does. Using the approach in today's order, the Commission will always conclude that a project will not have a significant environmental impact irrespective of that project's actual GHG emissions or those emissions' impact on climate change. If the Commission's conclusion will not change no matter how many GHG emissions a project causes, those emissions cannot, as a logical matter, play a meaningful role in the Commission's public interest determination. A public interest determination that systematically excludes the most important environmental consideration of our time is contrary to law, arbitrary and capricious, and not the product of reasoned decisionmaking.

7. The failure to meaningfully consider the Project's GHG emissions is all-the-more indefensible given the volume of GHG emissions at issue in this proceeding. The Project will directly release over 9 million tons of GHG emissions per year.²⁰ That is equivalent to the annual GHG emissions of roughly 2 million automobiles.²¹ The Commission acknowledges that "GHGs emissions due to human activity are the primary cause of increased levels of all GHG since the industrial age,"²² a result that the Commission has previously (although notably not in the environmental analysis accompanying today's order) acknowledged will "threaten the public health and welfare of current and future generations through climate change."²³ In light of this undisputed relationship between

2699, 2706 (2015) ("Not only must an agency's decreed result be within the scope of its lawful authority, but the process by which it reaches that result must be logical and rational." (internal quotation marks omitted)); *Motor Vehicle Mfrs. Ass'n, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (explaining that agency action is "arbitrary and capricious if the agency has . . . entirely failed to consider an important aspect of the problem, [or] offered an explanation for its decision that runs counter to the evidence before the agency").

²⁰ Certificate Order, 169 FERC ¶ 61,131 at P 105; EIS at 4-262 & Table 4.11.1-7 (estimating the Project's emissions from routine operation).

²¹ This figure was calculated using the U.S. Environmental Protection Agency's (EPA) Greenhouse Gas Equivalencies Calculator. See U.S. Env'tl. Prot. Agency, Greenhouse Gas Equivalencies Calculator, <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator> (last visited Nov 21, 2019).

²² EIS at 4-243.

²³ Environmental Assessment, Docket No. CP18-512-000 at 112 (Mar. 29, 2019); see also *id.* at 235 ("Construction and operation of the Project would increase the

anthropogenic GHG emissions and climate change, the Commission must carefully consider the Project's contribution to climate change when determining whether the Project is consistent with the public interest—a task that it entirely fails to accomplish in today's order.

8. In addition, the cumulative effects of the Project along with the Texas Brownsville LNG and Annova LNG facilities will have a significant adverse effect on the environment, notably on endangered species, including the ocelot, the jaguarundi, and the aplomado falcon.²⁴ Although the Commission reports those impacts in its EIS²⁵ and mentions them briefly in today's order,²⁶ it is far from clear whether and how they factor into the Commission's public interest analysis. Given the extent of those adverse impacts on endangered species—which appear to be more extensive than those caused by other energy infrastructure projects that the Commission has approved under NGA section 3 and section 7 in recent years²⁷—reasoned decisionmaking requires the Commission to do more than simply recite the potential harm to endangered species and then proceed to make a public interest determination without any further discussion.

9. Finally, the Project will be located in Cameron County, Texas—a county in which nearly a third of the population is below the poverty line and a substantial portion is made up of minority groups.²⁸ I fully appreciate that the jobs and economic stimulus that a facility like the Project can provide may be especially important in a community facing economic challenges. But, by the same token, we cannot turn a blind eye to the incremental impact that increased pollution will have on economically disadvantaged communities, which frequently experience a disproportionate toll from the development

atmospheric concentration of GHGs in combination with past and future emissions from all other sources and contribute incrementally to future climate change impacts.”).

²⁴ See EIS at ES-19, 4-447 – 4-450 (ocelot and jaguarundi); *id.* at 4-445 (aplomado falcon).

²⁵ See *id.*

²⁶ Certificate Order, 169 FERC ¶ 61,131 at PP 56, 113, 115.

²⁷ For example, the EIS states “the primary threat to ocelot and jaguarundi populations in the United States is habitat loss, degradation, and fragmentation” noting that for ocelots in particular even “incremental habitat loss could be significant.” EIS at 4-448.

²⁸ See *supra* note 8.

of new industrial facilities. Especially in light of the potential cumulative impact of building three large LNG export facilities in a few-mile radius, I do not agree that we can dispose of the environmental justice concerns simply on the basis that those groups will experience conditions no worse than the surrounding county—particularly when the surrounding county presents many of the same concerns that underlie the Council on Environmental Quality’s (CEQ) and EPA’s environmental justice guidance.²⁹

II. The Commission Fails to Satisfy Its Obligations under NEPA

10. The Commission’s NEPA analysis of the Project’s GHG emissions is similarly flawed. In order to evaluate the environmental consequences of the Project under NEPA, the Commission must consider the harm caused by its GHG emissions and “evaluate the ‘incremental impact’ that those emissions will have on climate change or the environment more generally.”³⁰ As noted, the operation of the Project will emit more than 9 million tons of GHG emissions per year.³¹ Although quantifying the Project’s GHG emissions is a necessary step toward meeting the Commission’s NEPA obligations, listing the volume of emissions alone is insufficient.³² As an initial matter, identifying the consequences that those emissions will have for climate change is essential if NEPA is to play the disclosure and good government roles for which it was designed. The Supreme Court has

²⁹ EIS at 4-234 (discussing the guidelines provided by CEQ and EPA to identify environmental justice communities).

³⁰ *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1216 (9th Cir. 2008); *WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41, 51 (D.D.C. 2019) (explaining that the agency was required to “provide the information necessary for the public and agency decisionmakers to understand the degree to which [its] decisions at issue would contribute” to the “impacts of climate change in the state, the region, and across the country”).

³¹ Certificate Order, 169 FERC ¶ 61,131 at P 105; *see also* EIS at 4-262 & Table 4.11.1-7.

³² *See Ctr. for Biological Diversity*, 538 F.3d at 1216 (“While the [environmental document] quantifies the expected amount of CO₂ emitted . . . , it does not evaluate the ‘incremental impact’ that these emissions will have on climate change or on the environment more generally”); *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 995 (9th Cir. 2004) (“A calculation of the total number of acres to be harvested in the watershed is a necessary component . . . , but it is not a sufficient description of the actual environmental effects that can be expected from logging those acres.”).

explained that NEPA’s purpose is to “ensure[] that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts” and to “guarantee[] that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision.”³³ It is hard to see how hiding the ball by refusing to assess the significance of the Project’s climate impacts is consistent with either of those purposes.

11. In addition, under NEPA, a finding of significance informs the Commission’s inquiry into potential ways of mitigating environmental impacts.³⁴ An environmental review document must “contain a detailed discussion of possible mitigation measures” to address adverse environmental impacts.³⁵ “Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects” of a project, meaning that an examination of possible mitigation measures is necessary to ensure that the agency has taken a “hard look” at the environmental consequences of the action at issue.³⁶

12. The Commission responds that it need not determine whether the Project’s contribution to climate change is significant because “[t]here is no universally accepted methodology” for assessing the harms caused by the Project’s contribution to climate change.³⁷ But the lack of a single consensus methodology does not prevent the

³³ *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 768 (2004) (citing *Robertson v. Methow Valley Citizens Coun.*, 490 U.S. 332, 349 (1989)).

³⁴ 40 C.F.R. § 1502.16 (2018) (NEPA requires an implementing agency to form a “scientific and analytic basis for the comparisons” of the environmental consequences of its action in its environmental review, which “shall include discussions of . . . [d]irect effects and their significance.”).

³⁵ *Robertson*, 490 U.S. at 351.

³⁶ *Id.* at 352.

³⁷ EIS at 4-481 – 4-482 (stating that “there is no universally accepted methodology to attribute discrete, quantifiable, physical effects on the environment to Project’s incremental contribution to GHGs” and “[w]ithout either the ability to determine discrete resource impacts or an established target to compare GHG emissions against, we are unable to determine the significance of the Project’s contribution to climate change”); *see also* Certificate Order, 169 FERC ¶ 61,131 at P 106 (“The Commission has also previously concluded it could not determine whether a project’s contribution to climate change would be significant.”).

Commission from adopting *a* methodology, even if it is not universally accepted. The Commission could, for example, select one methodology to inform its reasoning while also disclosing its potential limitations or the Commission could employ multiple methodologies to identify a range of potential impacts on climate change. In refusing to assess a project's climate impacts without a perfect model for doing so, the Commission sets a standard for its climate analysis that is higher than it requires for any other environmental impact.

13. In any case, the Commission has several tools to assess the harm from the Project's contribution to climate change. For example, by measuring the long-term damage done by a ton of carbon dioxide, the Social Cost of Carbon links GHG emissions to the harm caused by climate change, thereby facilitating the necessary "hard look" at the Project's environmental impacts that NEPA requires. Especially when it comes to a global problem like climate change, a measure for translating a single project's climate change impacts into concrete and comprehensible terms plays a useful role in the NEPA process by putting the harm in terms that are readily accessible for both agency decisionmakers and the public at large. Yet, the Commission continues to ignore the Social Cost of Carbon, relying instead on deeply flawed reasoning that I have previously critiqued at length.³⁸

14. Furthermore, even without a formal tool or methodology, the Commission can consider all factors and determine, quantitatively or qualitatively, whether the Project's GHG emissions will have a significant impact on climate change. After all, that is precisely what the Commission does in other aspects of its environmental review, where the Commission makes several significance determinations without the tools it claims it needs to assess the significance of the Project's impact on climate change.³⁹ The Commission's refusal to similarly analyze the Project's impact on climate change is arbitrary and capricious.

15. And even if the Commission were to determine that the Project's GHG emissions are significant, that is not the end of the analysis. Instead, as noted above, the Commission could blunt those impacts through mitigation—as the Commission often

³⁸ See, e.g., *Fla. Se. Connection, LLC*, 164 FERC ¶ 61,099 (2018) (Glick, Comm'r, dissenting).

³⁹ See, e.g., EIS at 4-191 – 4-198, 4-59 – 4-69, 4-76 – 4-84, 4-86 – 4-103, 4-107 – 4-112 (concluding that there will be no significant impact on recreational and special interest areas, wetlands, vegetation, wildlife, migratory bird populations, pollinator habitat, and aquatic resources due to cooling water intake, among other things).

does with regard to other environmental impacts. The Supreme Court has held that an environmental review must “contain a detailed discussion of possible mitigation measures” to address adverse environmental impacts.⁴⁰ As noted above, “[w]ithout such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.”⁴¹ Consistent with this obligation, the EIS discusses mitigation measures to ensure that the Project’s adverse environmental impacts (other than its GHG emissions) are reduced to less-than-significant levels.⁴² And throughout today’s order, the Commission uses its conditioning authority under section 3 and section 7 of the NGA⁴³ to implement these mitigation measures, which support its public interest finding.⁴⁴ Once again, however, the Project’s climate impacts are treated differently, as the Commission refuses to identify any potential climate mitigation measures or discuss how such measures might affect the magnitude of the Project’s impact on climate change.

16. Finally, the Commission’s refusal to seriously consider the significance of the impact of the Project’s GHG emissions is even more mystifying because NEPA “does not dictate particular decisional outcomes.”⁴⁵ NEPA “merely prohibits uninformed—rather

⁴⁰ *Robertson*, 490 U.S. at 351.

⁴¹ *Id.* at 351-52; *see also* 40 C.F.R. § 1508.20 (defining mitigation); *id.* § 1508.25 (including in the scope of an environmental impact statement mitigation measures).

⁴² *See, e.g.*, Certificate Order, 169 FERC ¶ 61,131 at P 107 (discussing mitigation required by the Commission to address reliability and safety impacts from the Project); *id.* PP 101, 103 (discussing mitigation measures required to address air quality and noise); *id.* PP 77-78 (discussing mitigation measures required to address impacts on vegetation).

⁴³ 15 U.S.C. § 717b(e)(3)(A); *id.* § 717f(e); Certificate Order, 169 FERC ¶ 61,131 at P 129 (“[T]he Commission has the authority to take whatever steps are necessary to ensure the protection of environmental resources . . . , including authority to impose any additional measures deemed necessary.”).

⁴⁴ *See* Certificate Order, 169 FERC ¶ 61,131 at P 129 (explaining that the environmental conditions ensure that the Project’s environmental impacts are consistent with those anticipated by the environmental analyses, which found that the Project would not significantly affect the quality of the human environment).

⁴⁵ *Sierra Club v. U.S. Army Corps of Engineers*, 803 F.3d 31, 37 (D.C. Cir. 2015).

than unwise—agency action.”⁴⁶ The Commission could find that a project contributes significantly to climate change, but that it is nevertheless in the public interest because its benefits outweigh its adverse impacts, including on climate change. In other words, taking the matter seriously—and rigorously examining a project’s impacts on climate change—does not necessarily prevent any of my colleagues from ultimately concluding that a project satisfies the relevant public interest standard.

For these reasons, I respectfully dissent.

Richard Glick
Commissioner

⁴⁶ *Id.* (quoting *Robertson*, 490 U.S. at 351).

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

In the Matter of
RIO GRANDE LNG, LLC
RIO BRAVO PIPELINE COMPANY, LLC

CP16-454-000
CP16-455-000

REQUEST FOR REHEARING AND STAY OF ORDER 169 FERC ¶ 61,131, GRANTING
AUTHORIZATIONS UNDER SECTIONS 3 AND 7 OF THE NATURAL GAS ACT

Pursuant to Section 19(a) of the Natural Gas Act, 15 U.S.C. § 717r(a), and rule 713 of the Federal Energy Regulatory Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.713, Sierra Club, Texas RioGrande Legal Aid (on behalf of Shrimpers and Fisherman of the RGV and Vecinos para el Bienestar de la Comunidad Costera), Save RGV from LGV, Defenders of Wildlife, the City of South Padre Island, the City of Port Isabel, the Town of Laguna Vista, and affected landowners Cynthia and Gilberto Hinojosa (collectively, "Intervenors") hereby request rehearing of FERC's "Order Granting Authorizations" ("Order") in the above-captioned matters, issued November 22, 2019. In addition, Intervenors request a stay of this order, pursuant to 5 U.S.C. § 705.

FERC granted the Intervenors' respective motions to intervene in these dockets on May 17, 2017,¹ and affirmed the grant of intervention in the Order, P15. Thus, each Intervenor is a "party" to this proceeding, 18 C.F.R. § 385.214(c), with standing to file this request for rehearing. A list of addresses for communication regarding this request is provided starting on page 56 of this document.

We request that the Order Granting Authorizations and deficient final environmental impact statement ("FEIS") be withdrawn, and the environmental analysis, public convenience and necessity, and public interest analyses be redone in a manner that complies with the Commission's obligations under the National Environmental Policy Act, 42 U.S.C. § 4321 *et seq*, Natural Gas Act, 15 U.S.C. § 717 *et seq.*, and other statutes.

¹ Accession No. 20170517-3057.

FERC has not answered, here or in any other proceeding, “whether – given the fact that Section 7 authorizes the use of eminent domain – it is lawful for the Commission to credit precedent agreements for export toward a finding that a pipeline is required by the public convenience and necessity.” *Id.* at 607.

Accordingly, the Order fails to support its conclusion that the Rio Bravo pipeline is required by the public convenience or necessity. FERC’s certificate policy statement requires a balancing of benefits and harms, but here, FERC has failed to demonstrate that there are any pertinent benefits. The Order only alludes to two pieces of evidence, DOE’s approval of exports to FTA nations and Rio Bravo’s contract with an affiliate, and as the DC Circuit has explained, neither suffices.

B. FERC Has Approved Infrastructure That FERC and the Applicants Themselves both Contend Will Not Be Foreseeably Used or Needed

The Order states that the Rio Grande terminal will have a capacity of 27 mtpa, Order, P6, and credulously accepts Rio Grande’s assertion that Rio Grande “does not intend to produce more than 27 MTPA of LNG,” Order P130. However, FERC has approved pipeline and liquefaction equipment with a capacity significantly larger than what is required to export 27 mtpa of LNG. Either this is infrastructure that will not foreseeably be used, which therefore should not have been approved, or it will foreseeably be used, in which case FERC violated NEPA by failing to consider the reasonably foreseeable impacts of such use. Either way, the current order and NEPA analysis are insufficient and unlawful.

1. The Approved Pipeline and Liquefaction Terminal Have Excess Capacity, and FERC Violated NEPA by Failing to Acknowledge This in The FEIS or to Prepare a Supplemental FEIS

There is no dispute that the liquefaction facility, as Rio Grande has begun contracting to build it, will have a capacity of at least 33 mtpa, rather than the 27 mtpa discussed in the FEIS. The proposed facility design calls for six identical liquefaction “trains.” FEIS at 2-5. The project applicants have finalized contracts for the engineering, procurement, and construction of the first three of the six proposed trains, with “[e]ach liquefaction train ... expected to have capacity up to

5.87 million tons per annum of LNG.”² Their corporate parent has similarly told investors to expect average annual production of 5.5 mtpa per train for all six trains.³ When Sierra Club, *et al.*, called this information to FERC’s attention, the applicants in no way disputed that they expect the actual physical capacity of the terminal to amount to 5.5 mtpa per train, or 33 mtpa per year, far in excess of what the FEIS (and, now FERC’s order) considered. Instead, Rio Grande merely asserts, astoundingly, that they intend to pay for the construction of infrastructure that they have no plans to use (namely, the sixth train, which will bring capacity from 27.5 mtpa to 33 mtpa).

The applicants have now admitted a fact that they vigorously denied in prior FERC filings, and FERC must demand an explanation for this change in position. In a protest of the application, Sierra Club explained that the liquefaction train design Rio Grande proposes to use, an Air Product and Chemicals, Inc., C3MR process, FEIS 2-6, has been employed on a similar scale at Freeport, Texas.⁴ The per-train nameplate capacity at Freeport matched what Rio Grande proposed here, but Freeport was able to increase capacity by roughly 20% by debottlenecking; Sierra Club explained that a similar debottlenecking and increase and output was foreseeable here.⁵ Rio Grande vigorously asserted that the proposed project design “leaves little room for improvement” and increased output,⁶ although neither Rio Grande nor FERC have identified a single pertinent difference between the proposed design of the Rio Grande liquefaction trains and the design used at Freeport. Rio Grande has not explained why it now expects capacity to be more than 20% greater than what it initially proposed. If the design has not changed, Rio Grande must explain what other facts lead it to confidently argue to FERC that no increase was possible in 2016 while telling investors that they should expect higher output in 2019. If the design or

² <https://investors.next-decade.com/node/8206/pdf>; accord <https://www.sec.gov/Archives/edgar/data/1612720/000155837019007245/next-20190630ex107a47daf.htm> at page 15 of 468 (“each having an aggregate nominal LNG production capacity of up to approximately 5.87 million metric tonnes per annum”), Renewed Request for Supplemental EIS, Ex. 1.

³ NextDecade, “Corporate Presentation, August 2019” at 5-6, <https://investors.next-decade.com/static-files/dbae3796-a15a-43dc-a218-3ae286f39ae2> (last accessed Dec. 18, 2019), Renewed Request for Supplemental EIS, Ex. 2.

⁴ See, e.g., Protest of Sierra Club and Defenders of Wildlife at 3-4 (May 6, 2016).

⁵ See Freeport LNG Development, et al., Application, CP15-518 (June 15, 2015), FERC Accession No. 20150615-5291.

⁶ Accession No. 20160623-5023 at 15.

underlying technology *has* changed,⁷ then Rio Grande must explain these changes, with specificity, and explain how these changes impact the rest of the analysis in the FEIS. For example, calculations regarding air emissions are based on the specific facility design: if that design has changed, this analysis must be redone.

Similarly, the capacity of the Rio Bravo pipeline project far exceeds what is required to enable 27 mtpa of exports.⁸ 27 mtpa of exports is equivalent to 3.6 bcf/d. The liquefaction process, when gas-driven, typically consumes additional gas equivalent to 10% of the LNG produced.⁹ As FERC is aware, other existing¹⁰ and approved¹¹ LNG export projects are generally supplied by pipelines with capacities more closely matched to export volumes. Here, 3.6 bcf/d of exports would therefore appear to warrant a pipeline with roughly 4 bcf/d of capacity. However, Rio Bravo proposes 4.5 bcf/d of capacity, an astounding 25% higher than the proposed 3.6 bcf/d of exports.

In addition to the FEIS' failure to account for a potential increase in terminal capacity that was foreseeable at the time of preparation, FERC further violated NEPA by failing to prepare a supplemental FEIS once Rio Grande stated publicly that the liquefaction trains would have capacity exceeding that reflected in the FEIS. *See Warm Springs Task Force v. Gribble*, 621 F.2d 1017 (9th Cir. 1980); *Commonwealth of Massachusetts v. Watt*, 716 F.2d 946 (1st Cir. 1983).

⁷ See Rio Grande response to request for an SEIS at 2 (June 3, 2019) ("The technologies selected by RG Developers and filed with FERC in 2015 and 2016, in the pre-filing and application processes, have evolved over the last four years and now have the potential to produce more LNG.").

⁸ See DEIS Comment at 9.

⁹ Energy Information Administration, Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Markets, at 9 (Oct. 2014), Joint Comments on DEIS, Ex. 21.

¹⁰ For example, the nearest existing LNG export facility, the Corpus Christi project, is fed by a pipeline with only 7% greater capacity than the terminal output. Final EIS for the Corpus Christi Project, Accession No. 20141008-4001, at 1-6 (terminal capacity 2.1 bcf/d), 1-2, 2-9 (supply pipeline capacity 2.25 bcf/d), *available at* <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13654196>.

¹¹ For example, the approved Driftwood facility will have a capacity of 27.6 mtpa, with a feed gas pipeline with a capacity of 4.0 bcf/d. Final EIS for the Driftwood LNG Project, Accession No. 20190118-3018, ES-1, 2-8, *available at* <https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=15143179>. The approved Port Arthur facility will have almost exactly half the capacity of Rio Grande, at 13.46 mtpa, and be supplied by a 2 bcf/d feed gas pipeline. Final EIS for the Port Arthur Project, Accession No. 20190131-3023, at ES-2, *available at* <https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=15207963>.

2. FERC Should Have Evaluated an Alternative that Eliminated Excess Infrastructure, and FERC Provides No Basis for Approving Infrastructure With Capacity Beyond 27 mtpa

Under NEPA, FERC should have rigorously explored whether an alternative with a smaller pipeline system or liquefaction facility could have met the stated project purpose of enabling the export of 27 mtpa of LNG. 40 C.F.R. § 1502.14. Indeed, NEPA requires a hard look at such an alternative even if, contrary to the Order's conclusion, it is foreseeable that the applicants may seek to increase exports in the future: the applicants' representations to FERC have clearly demonstrated that a facility that maxes out at 27 mtpa would be practicable. *See N. Buckhead Civic Ass'n v. Skinner*, 903 F.2d 1533, 1542 (11th Cir. 1990) (NEPA requires consideration of alternatives that only partially meet applicant's stated purpose), *Nat. Res. Def. Council, Inc. v. Callaway*, 524 F.2d 79, 93 (2d Cir. 1975).

In addition to violating the NEPA obligation to explore alternatives, FERC violated the Natural Gas Act by approving infrastructure that exceeds what is necessary to export 27 mtpa of LNG. As FERC has previously recognized, construction of gas infrastructure that will not actually be used causes harm to environment and landowners without providing any countervailing public benefit. *Jordan Cove Energy Project, L.P. Pac. Connector Gas Pipeline, Lp*, 154 FERC ¶ 61190, PP38-42 (Mar. 11, 2016). A smaller pipeline system and liquefaction terminal could have achieved the project purpose; as such, environmental, economic, and other harms caused by construction and operation of excess infrastructure provide harms without providing any benefit, and are not required by the public convenience or in the public interest. *See Sierra Club v. FERC*, 867 F.3d 1357, 1379 (D.C. Cir. 2017).

Specifically, the terminal size could be reduced from six liquefaction trains to five. Rio Grande does not dispute that, under the contracts Rio Grande has entered for liquefaction train design and construction, each train will have a capacity of at least 5.5 mtpa, such that five trains could produce 27.5 mtpa, which is in excess of the 27 mtpa for which Rio Grande has sought authorization. Eliminating the sixth liquefaction train would reduce the visual impact and allow a smaller terminal footprint, and enable Rio Grande to reconfigure the site layout to reduce the amount of wetland fill and intrusion into habitat. Forgoing the sixth train would also reduce construction impacts, as most or all of construction stage six could be skipped. This would shorten overall project construction by six months and reduce the intensity of construction activity during the final two and a half years of construction (Q3 Year 4 through Q1 year 7). FEIS 2-33.

Reducing the duration and intensity of construction would reduce many of the other impacts FERC acknowledged to be significant, including potential for vehicular strikes on wildlife. Order, P56.

FERC also should have considered a smaller alternative to the proposed delivery of 4.5 bcf/d through a pair of 42-inch pipelines. As explained above and in prior comments, analysis by the Energy Information Administration, as well as FERC's experience with other LNG export projects, indicates that LNG exports processed using a gas-fired liquefaction facility requires feed gas of roughly 10% more than the export volume. Accordingly, the 27 mtpa of exports proposed here, equivalent to 3.6 bcf/d, could be accomplished with a 4.0 bcf/d supply pipeline.

Although FERC determined that it would be infeasible to supply 4.5 bcf/d with a single, 60 inch pipeline instead of the proposed pair of 42-inch pipelines, FEIS at 3-26, other FERC-approved projects have demonstrated that, if the pipeline system was reduced to a more appropriate 4.0 bcf/d, it would be feasible to deliver this supply through a single pipe. Most directly comparable, the Driftwood LNG project, with a capacity of 27.6 mtpa of LNG, proposes to receive its feed gas through a single 48-inch pipeline delivering 4 bcf/d of gas.¹² We recognize that pipeline throughput depends on temperature, compression, and other variables, but here, FERC violated NEPA and the Natural Gas Act by only considering alternatives with 4.5 bcf/d of capacity, and by entirely failing to consider whether the proposed exports could adequately be supplied by a lower-capacity pipeline system and whether, as is the case with Driftwood, that lower capacity could have been accommodated by a less-impactful alternative, such as a single 48-inch pipeline.

Substituting a single pipe for the proposed pair of pipelines would significantly reduce both construction and operational impacts. Using a single pipeline would allow the permanent right-of-way to be reduced by 33%, from 75 feet to 50 feet, FEIS at 2-25, and would likely enable a reduction in the construction right-of-way width as well. This reduction in the permanent right-of-way would avoid 400 acres of permanent impacts, reducing impact on habitat and vegetation. FEIS 4-178. Narrowing the right-of-way would also reduce the impact on private landowners,

¹² Final EIS for the Driftwood LNG Project, Accession No. 20190118-3018, 2-9, *available at* <https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=15143179>. Specifically, the Driftwood supply system involves a 74 mile 48 inch pipe, which then narrows to 42 inches and ultimately 36 inches. *Id.*

including reducing the amount of land that would need to be condemned through eminent domain on any given parcel. It would likely avoid permanent impacts to roughly 30 acres of wetlands. FEIS at 4-60. It may be that a single pipeline delivering 4 bcf/d of gas would require additional compression beyond what Rio Bravo proposes (although it is not clear that this is the case), but this possibility does not justify failing to take a hard look at this alternative—rather, it is precisely the point of the hard look to identify, scrutinize, and ultimately balance such tradeoffs.

In summary, both the proposed terminal and the proposed pipeline are bigger, and thus have greater impacts than is necessary to produce 27 mtpa of exports. FERC's failure to consider alternative designs more closely matched to the stated project purpose renders the FEIS deficient. *Westlands Water Dist. v. U.S. Dep't of Interior*, 376 F.3d 853, 868 (9th Cir. 2004) (“The existence of a viable but unexamined alternative renders an environmental impact statement inadequate.”). Moreover, insofar as the purpose of the project is to provide 27 mtpa of exports, the harms associated with this excess capacity are unwarranted and contrary to the public interest; if FERC is to approve the project at all, it must require that the project be redesigned to be appropriately scaled. This is especially so where, as here, FERC contends that there are no foreseeable plans to increase capacity or output.

3. FERC Violated NEPA by Failing to Consider the Impacts of a Reasonably Foreseeable Future Increase in Output

NEPA requires that an EIS consider the effects “reasonably foreseeable future actions” as part of the cumulative effects analysis. 40 C.F.R. § 1508.7; *see also* 40 C.F.R. §§ 1508.8(b) (requiring a hard look at reasonably foreseeable indirect effects), 1508.25. “The regulations clearly mandate consideration of the impacts from actions that are not yet proposals” *Fritiofson v. Alexander*, 772 F.2d 1225, 1243 (5th Cir. 1985), *abrogated on other grounds by Sabine River Auth. v. U.S. Dep't of Interior*, 951 F.2d 669 (5th Cir. 1992).

Here, where Rio Grande seeks to build expensive liquefaction and export infrastructure with a capacity of at least 33 mtpa, it is reasonably foreseeable that Rio Grande will seek to utilize the full capacity of this infrastructure. Notwithstanding Rio Grande's implausible assertion to FERC that “at this time” it has no intention of seeking authorization for additional exports,¹³ in communications with investors, Rio Grande has based its earnings estimates on the assumption

¹³ Response to SEIS Request at 2, 7.

that the Rio Grande project will export 33 mtpa.¹⁴ Specifically, NextDecade's estimates of earnings before interest expense, taxes, depreciation and amortization, based on the liquefaction fee charged per mmbtu, rely on the post-debottlenecking 5.5 mtpa output from each of six liquefaction trains.¹⁵ FERC "has the duty under NEPA to exercise a degree of skepticism in dealing with self-serving statements from a prime beneficiary of the project." *Citizens Against Burlington, Inc.*, 938 F.3d at 209 (Buckley, J., dissenting). The fact that Rio Grande has not yet sought DOE or FERC authorization for an additional 6 mtpa of exports does not mean that such an increase is speculative or unforeseeable.

In addition to NEPA, FERC's own policy and precedent requires considering the full potential capacity of the Rio Grande project, and the impacts thereof. FERC has recognized that even where "accurate calculation of the maximum or peak capacity at optimal conditions may not be possible at the time an initial application for construction is filed," the "ultimate authorization" should "reflect the maximum or peak capacity at optimal conditions as such a level represents the actual potential production of LNG." *Sabine Pass Liquefaction, LLC Sabine Pass LNG, L.P.*, 146 FERC ¶ 61117, 61515 P12 (Feb. 20, 2014). FERC explained that its analysis and approval should reflect maximum or peak capacity even where the company has not actually contracted for or made plans for full utilization of this optimal capacity. *Id.* P12 n.18. Where, as here, there is no dispute that, as a factual matter, the proposed and approved infrastructure will be capable of producing 33 mtpa, no FERC precedent supports cabining environmental review or FERC authorization to the impacts of 27 mtpa of exports.

Other factors further indicate that FERC must consider the effects of additional exports now. Rio Grande has not offered any argument or evidence demonstrating that liquefaction train 6 has significant independent utility aside from facilitating a future increase in export output beyond 27 mtpa. On the other hand, construction of the facility as presently designed would entail a significant commitment of resources. Approving construction now, with this project site layout, forecloses, or at least impairs the opportunity to consider alternatives with smaller footprints and lesser impacts. Thus, whether viewed through the lens of cumulative effects, reasonably foreseeable indirect effects, or segmentation, the impacts of full utilization of project's technical

¹⁴ NextDecade, Corporate Presentation at 24 (May 2019)

¹⁵ *Id.* The fact that NextDecade is assuming a full 5.5 mtpa from each train is plainly illustrated by juxtaposition of the Rio Grande estimates with those for the Galveston Bay proposal.

capacity must be considered now.

Increasing the throughput and exports from 27 mtpa to 33 mtpa will increase many environmental impacts, including many of those FERC has found to be significant. Most plainly, exporting more gas will require more vessels. Increasing vessel traffic by 22% will increase impacts to fishing, the impacts of ballast water and cooling water discharge, impacts on marine species (such as vessel strikes on listed sea turtles), air pollution from LNG vessels, and sounds from vessel transit and loading. FEIS 4-111 to 4-114, 4-136 to 4-137, 4-221 to 4-222, 4-295.

Increasing output is also likely to increase direct air emissions from the liquefaction terminal. Even if, as Rio Grande stated in its answer to Sierra Club's protest,¹⁶ the air pollution from refrigeration units and associated gas turbines does not increase, there will likely be an increase in emissions relating to pretreatment. Pipeline gas contains hydrogen sulfide and other impurities that must be removed prior to liquefaction. FEIS 4-323. If 33, rather than 27, mtpa of gas are processed, this increases the amount of these contaminants that must be disposed of. Rio Grande proposes to dispose of hydrogen sulfide by burning it in a "thermal oxidizer," which controls hydrogen sulfide but which nonetheless emits other air pollutants. FEIS 4-323, 4-260. FERC must take a hard look at whether and how a 22% increase in throughput, and thus a 22% increase in contaminants that must be treated, will increase emissions from this source. If thermal oxidizer emissions are proportional to the amount of hydrogen sulfide and other gases treated, the increase in terminal output could result in an additional 400,000 tons per year of carbon dioxide equivalent, 40 tons per year of NO_x, 30 tons per year of CO, and other additional pollutants. FEIS 4-260.

Finally, increasing the throughput will increase the foreseeable, indirect effects related to the gas lifecycle: exporting more LNG will mean more drilling, processing, pipeline transportation, LNG ocean transit, regasification, and ultimate combustion. *See* Part II.N, *infra*.

C. FERC Violated NEPA and the Clean Water Act by Failing to Take a Hard Look at Alternatives that Would Move Compression Station 3 to an Upland Location

The proposed design sites pipeline compressor station 3 at the terminus of the pipeline,

¹⁶ Insofar as Rio Grande has abandoned, if not outright contradicted, other arguments and factual statements made in this answer, FERC cannot assume that Rio Grande's prior arguments about potential air impacts are still valid.

within the terminal site boundary and in a location containing wetland. FERC failed to take a hard look at alternatives that would relocate this compressor station to an upland location along the pipeline upstream of the terminal.

The FEIS's brief acknowledgment and dismissal of the possibility of an alternative location for compressor station 3 falls far short of a hard look. The FEIS states:

Alternative locations outside of the LNG Terminal site were also considered by RG Developers during Project design; however, such offsite locations were ruled out because there would be less impact if the compressor station was included within the LNG Terminal site as opposed to being constructed on a separate 40- acre (or larger) parcel elsewhere. A comment was received on the draft EIS requesting Compressor Station 3 be moved to affect no wetlands; however, to do this would require moving the compressor station at least 10 miles northwest of its proposed location. Additionally, for engineering purposes, there are benefits to having the compressor station as close to the delivery point as possible. Our analysis in section 4 of this EIS did not identify any environmental concerns specific to Compressor Station 3, and concluded that siting the compressor station outside of the terminal site would result in more impacts on wetlands.

FEIS 3-28. Essentially every statement in this paragraph is unsupported:

- “*Alternative locations outside of the LNG Terminal site were also considered by RG Developers during Project design.*” FERC has not provided any citation or evidence to support this. FERC has not identified when or where such discussion occurred, or which specific alternative locations were considered. Even if such analysis is available elsewhere, NEPA requires that *FERC*, not merely the project applicant, take a hard look at all reasonable alternatives *in the EIS*.
- “*such offsite locations were ruled out because there would be less impact if the compressor station was included within the LNG Terminal site as opposed to being constructed on a separate 40- acre (or larger) parcel elsewhere.*” Again, there is no explanation as to when this analysis was undertaken or how the public can review it. There is no explanation of what the impacts of an offsite location would be, other than a potentially larger footprint, or of how FERC determined that these impacts would be more harmful than the impacts of locating Compressor Station 3 in wetlands at the terminal site. NEPA requires that such comparison occur *in the EIS*; the point of the EIS is to take a

hard look at alternatives so that precisely this type of comparison can be fully scrutinized. That has not happened here.

- Moving “*Compressor Station 3 ... to affect no wetlands; ... would require moving the compressor station at least 10 miles northwest of its proposed location.*” The EIS provides no information to support the determination that no upland location is possible within 10 miles of the terminal site. Insofar as the FEIS suggests, but does not clearly state, that a location 10 miles away would be impractical, the FEIS offers no explanation as to why this would be the case. There is no evidence indicating that the pressures required at the pipeline terminus cannot be established and maintained by a compressor station removed from the terminal—indeed, most, if not all, other LNG export facilities involve an ultimate compressor station that is several miles removed from the liquefaction facility, including many facilities in which the last compressor station is more than ten miles from the liquefaction site.¹⁷
- “*Additionally, for engineering purposes, there are benefits to having the compressor station as close to the delivery point as possible.*” The FEIS provides no explanation as to what these “benefits” are, nor any explanation as to how significant or essential they are. Again, numerous other LNG export facilities operate successfully with a compressor station that is several miles away from the liquefaction site, demonstrating that any “benefits” provided by an immediately-adjacent compressor station are at best conveniences rather than necessities.
- “*Our analysis in section 4 of this FEIS did not identify any environmental concerns specific to Compressor Station 3.*” Compressor Station 3 is sited in, and requires the destruction of, wetlands. Section 4 of the FEIS acknowledges this fact.¹⁸ The Clean Water

¹⁷ See, e.g., Environmental Assessment for Elba Island, Accession No. 20160205-4000, Tbl. 3.3.2-2, B-8, B-9 (compressor station 11.1 miles from terminal), *available at* <https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14139095>, Cameron Interstate Pipeline, Response to Jan. 15, 2013 Environmental Information Request, Accession No. 20130205-5119, (compressor station 27.3 miles away), *available at* <https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13170685>. See also EIS for Corpus Christi, Accession No. 20141008-4001, at 2-10 (compressor station roughly 7.5 miles away), *available at* <https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13654230>.

¹⁸ More broadly, section 4 does not provide any meaningful analysis of alternatives to the siting of Compressor Station 3, instead merely cross-referencing the alternatives analysis quoted above.

Act creates a presumption that wetlands fill is harmful and must be avoided if there is another practicable alternative. *See, e.g., City of Shoreacres v. Waterworth*, 420 F.3d 440, 447–48 (5th Cir. 2005) (quoting 40 C.F.R. § 230.10(a)).

- “and concluded that siting the compressor station outside of the terminal site would result in more impacts on wetlands.” The FEIS implies that a site 10 miles away from the terminal is available that would result in *no* impacts to wetlands. The FEIS fails to show that a site 10 miles away is infeasible.

D. FERC Has Failed to Take A Hard Look at Pipeline Route Changes Required by the Fish and Wildlife Service

The October 1, 2019 Biological Opinion for the project states:

To further reduce direct impacts to ocelot habitat, RB [Rio Bravo] Pipeline will re-route the pipeline between MP 69.9 to MP 79.2, to avoid 62.6 acres of habitat. RB Pipeline will move the route south into existing row crop agricultural land and collocate with an existing transmission line ROW. The re-route will not result in any additional impacts to ocelot habitat. With the implementation of these avoidance and minimization measure, the Pipeline System will affect 73.3 acres of habitat.

BiOp at 22. This ten-mile reroute or realignment is one of the “voluntary conservation measures” that the Fish and Wildlife Service determined that Rio Bravo “must fully implement.” BiOp at 3, 34.

Although FERC’s November 22, 2019, Order does not explicitly discuss this reroute, the Order instructs Rio Bravo to “implement the voluntary conservation measures proposed in the[] biological opinion,” implicitly requiring this realignment. Order P85; *accord* Order P91.

However, it appears that this realignment differs from the route analyzed in the FEIS. The BiOp does not provide a map of the realigned route, any indication of where the public can find such a map or other details about the realigned route, or an explicit statement as to whether the realignment is relative to the route discussed as the preferred alternative in the FEIS or to some

See, e.g., FEIS 4-67 (“Although RG LNG proposes to locate the LNG Terminal site (including Compressor Station 3) in wetlands, we have determined that the proposed location is the most environmentally preferable and practical alternative that meets the Project’s stated purposed (see section 3.3).”).

170 FERC ¶ 61,046
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Neil Chatterjee, Chairman;
Richard Glick and Bernard L. McNamee.

Rio Grande LNG, LLC
Rio Bravo Pipeline Company, LLC

Docket Nos. CP16-454-001
CP16-455-001

ORDER ON REHEARING AND STAY

(Issued January 23, 2020)

1. On November 22, 2019, the Commission issued an order pursuant to section 3 of the Natural Gas Act (NGA)¹ and Part 153 of the Commission's regulations² authorizing Rio Grande LNG, LLC (Rio Grande) to site, construct, and operate a liquefied natural gas (LNG) terminal on the Brownsville Shipping Channel in Cameron County, Texas (Rio Grande LNG Terminal).³ The Commission also authorized, pursuant to NGA section 7(c)⁴ and Parts 157 and 284 of the Commission's regulations,⁵ Rio Bravo Pipeline Company, LLC (Rio Bravo) to construct and operate a pipeline system in Jim Wells, Kleberg, Kenedy, Willacy, and Cameron Counties, Texas, to transport natural gas in interstate commerce to the Rio Grande LNG Terminal for processing, liquefaction, and export (Rio Bravo Pipeline Project).

2. On December 23, 2019, the Commission received two requests for rehearing of the November 22 Order, one from Sierra Club, Texas RioGrande Legal Aid, Save RGV from LGV, Defenders of Wildlife, the City of South Padre Island, the City of Port Isabel, the Town of Laguna Vista, and Cynthia and Gilberto Hinojosa (collectively, Sierra Club); and the other from Mr. John Young. Sierra Club also sought a stay pending the resolution of the

¹ 15 U.S.C. § 717b (2018).

² 18 C.F.R. pt. 153 (2019).

³ *Rio Grande LNG, LLC*, 169 FERC ¶ 61,131 (2019) (November 22 Order).

⁴ 15 U.S.C. § 717f (2018).

⁵ 18 C.F.R. pt. 157 (2019).

rehearing request. For the reasons discussed below, we deny the requests for rehearing and dismiss Sierra Club's request for stay as moot.

I. Background

3. The Rio Grande LNG Terminal is designed to produce a nominal capacity of up to 27 million metric tonnes per annum (MTPA) of LNG for export.⁶ The project facilities will occupy 750.4 acres of land on a 984.2-acre parcel⁷ and include six natural gas liquefaction trains, each with a nominal capacity of 4.5 MTPA, for a total nominal capacity of 27 MTPA; four full-containment LNG storage tanks, each with a net capacity of approximately 180,000 cubic meters (m³); two LNG carrier loading berths; one 1,500-foot-diameter turning basin; LNG truck loading and unloading facilities with four loading bays; two natural gas liquids truck loading bays; and other facilities such as administrative buildings, a central control building, a workshop, a warehouse, electrical equipment enclosures, a communication system, and other support structures.⁸

4. In August 2016, Rio Grande received authorization from the Department of Energy, Office of Fossil Energy (DOE) to export the project's full capacity, which is equivalent to 1,318 billion cubic feet (Bcf) annually (approximately 3.6 Bcf per day (Bcf/d)) equivalent of natural gas in the form of LNG to countries with which the United States has a Free Trade Agreement (FTA).⁹ In addition, Rio Grande currently has a pending application with DOE to export LNG to other nations with which the U.S. permits such trade, but has not entered into an FTA.¹⁰

5. The Rio Bravo Pipeline Project is designed to provide up to 4.5 Bcf per day (i.e., 4,500,000 dekatherms per day (Dth/d)) of firm natural gas transportation service from

⁶ November 22 Order, 169 FERC ¶ 61,131 at P 5.

⁷ The parcel is owned by the Brownsville Navigational District, a political subdivision of Texas that operates the Port of Brownsville. Rio Grande's parent company, NextDecade, executed an Option to Lease the acreage from the Brownsville Navigational District. *Id.* P 7 & n.12.

⁸ *Id.* PP 6-7.

⁹ *Rio Grande LNG, LLC*, DOE/FE Docket No. 15-190-LNG, Order No. 3869 (2016). Assuming a gas density of 0.7 kg/m³, 3.6 Bcf/d is 26.1 MTPA, which is roughly equivalent to the authorized 27 MTPA.

¹⁰ Rio Grande's application to export LNG to non-FTA nations, filed on December 23, 2015, is pending before DOE/FE in Docket No. 15-190-LNG.

interconnects in the Agua Dulce Market Area¹¹ to the Rio Grande LNG Terminal. The Rio Bravo Pipeline Project will include two parallel 42-inch-diameter natural gas pipelines approximately 135.5 miles long, three 180,000 horsepower (hp) compressor stations, an approximately 2.4-mile-long pipeline header system, and other appurtenant facilities.¹² The pipeline is fully subscribed by Rio Bravo's affiliate, RioGas Marketing, LLC (RioGas) for a 20-year term at a negotiated rate.¹³

II. Procedural Matters

A. Late Filed Requests for Rehearing

6. NGA section 19(a) allows an aggrieved party to file a request for rehearing within thirty (30) days after the issuance of a final Commission order.¹⁴ The Commission's business hours are "from 8:30 a.m. to 5:00 p.m.,"¹⁵ and filings must be made before 5:00 p.m. in order to be considered filed on that day.¹⁶ The Commission may accept submissions deemed to be late when documents could not be presented on time due to error or oversight on the part of the Commission.¹⁷

¹¹ The Agua Dulce Market Area refers to the proposed interconnects located in the vicinity of the Agua Dulce Hub in Nueces County, Texas, including connections to the following pipelines: Houston Pipe Line Company Pipeline, Gulf South Pipeline, Kinder Morgan Texas Pipelines, Natural Gas Pipeline Company of America, Transcontinental Gas Pipeline, Tennessee Gas Pipeline, TransTexas Gas, and EPGT Texas Pipeline. November 22 Order, 169 FERC ¶ 61,131 at P 9 & n.15.

¹² *Id.* PP 1, 9.

¹³ *Id.* P 10.

¹⁴ 15 U.S.C. § 717r(a) (2018) ("Any person, State, municipality, or State commission aggrieved by an order issued by the Commission in a proceeding under this chapter to which such person, State, municipality, or State commission is a party may apply for a rehearing within thirty (30) days after the issuance of such order."). *See* 18 C.F.R. § 385.713(b) (2019) ("A request for rehearing by a party must be filed not later than thirty (30) days after issuance of any final decision or other final order in a proceeding.").

¹⁵ 18 C.F.R. § 375.101(c) (2019).

¹⁶ *See, e.g., Cameron LNG, LLC*, 148 FERC ¶ 61,237, at P 6 (2014).

¹⁷ *See, e.g., Westar Energy, Inc.*, 137 FERC ¶ 61,142, at P 19 (2011) (accepting requests for rehearing when the request was submitted within the thirty (30)-day limit but

7. Requests for rehearing of the November 22 order were due by 5:00 p.m. on December 23, 2019. On that date, Sierra Club's request for rehearing was received at 5:40 p.m. and Mr. Young's at 9:07 p.m., both after the 5:00 p.m. deadline. However, the Commission's eFiling system could not accept filings starting at 4:40 p.m. and was not restored until after 5:00 p.m. Accordingly, Sierra Club's and Mr. Young's filings are deemed to have been timely filed.

B. Deficient Rehearing Request

8. Mr. Young's request for rehearing is deficient because it fails to include a Statement of Issues section separate from his arguments, as required by Rule 713 of the Commission's Rules of Practice and Procedure. Rule 713 states that requests for rehearing must "[s]tate concisely the alleged error in the final decision" and "include a separate section entitled 'Statement of Issues,' listing each issue in a separately enumerated paragraph" that includes precedent relied upon.¹⁸ Any issue not so listed will be deemed waived.¹⁹ Accordingly, we dismiss Mr. Young's rehearing request. However, the rehearing request raises several of the same issues raised by Sierra Club, which are addressed below.

9. Mr. Young's statements regarding the impacts of the project on the Boca Chica Beach SpaceX developments²⁰ are dismissed on the separate ground that he raises this issue for the first time on rehearing. Mr. Young had ample opportunity to present this information during the Commission's environmental review process. The Commission looks with disfavor on parties raising issues for the first time on rehearing that could have been raised earlier, particularly during the National Environmental Policy Act (NEPA) scoping process, in part, because other parties are not permitted to respond to requests for rehearing.²¹ Further,

was incorrectly time stamped due to an error in the Commission's eFiling system).

¹⁸ 18 C.F.R. §§ 385.713(c)(1), (2).

¹⁹ *Id.* § 385.713(c)(2).

²⁰ John Young Request for Rehearing at 6.

²¹ See *Baltimore Gas & Electric Co.*, 91 FERC ¶ 61,270, at 61,922 (2000) ("We look with disfavor on parties raising on rehearing issues that should have been raised earlier. Such behavior is disruptive to the administrative process because it has the effect of moving the target for parties seeking a final administrative decision."); *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 764 (2004) ("Persons challenging an agency's compliance with NEPA must 'structure their participation so that it ... alerts the agency to the [parties'] position and contentions,' in order to allow the agency to give the issue meaningful consideration.") (quoting *Vt. Yankee Nuclear Power Corp. v. Nat. Res. Def. Council, Inc.*, 435 U.S. 519, 553 (1978)); see also *Tenn. Gas Pipeline Co., L.L.C.*, 162 FERC ¶ 61,167, at P 10 (2018); *Nw. Pipeline, LLC*, 157 FERC ¶ 61,093, at P 27 (2016) ("We dismiss the Cemetery's argument

Mr. Young fails to specify any error with the Commission's analysis of the projects' impacts on the SpaceX developments, as required by the Commission's regulations, which state that requests for rehearing must "[s]tate concisely the alleged error in the final decision."²²

III. Discussion

A. The Natural Gas Act

1. Market Need

10. Sierra Club and Mr. Young argue that the Commission failed to support its finding that the Rio Bravo Pipeline is required by the public convenience and necessity.²³ Sierra Club states that the November 22 Order only alluded to two pieces of evidence to support a finding that the pipeline will provide public benefits: (1) DOE's finding that exports of the natural gas commodity to FTA nations are presumed to be in the public interest and (2) Rio Bravo's contract to provide natural gas transportation services to an affiliate.²⁴ Sierra Club states that neither supports a finding that the benefits of the project outweigh any economic and environmental harms to the surrounding community.²⁵

11. First, Sierra Club argues that the Commission cannot rely on DOE's approval of exports under NGA section 3 to demonstrate a finding of public convenience and necessity under NGA section 7.²⁶ Sierra Club states that under NGA section 3, "DOE shall approve

that EA's indirect impacts analysis was deficient because the Cemetery raises this argument for the first time on rehearing.").

²² 18 C.F.R. § 385.713(c)(1).

²³ Sierra Club Request for Rehearing and Stay at 6-8; John Young Request for Rehearing at 2-4.

²⁴ Sierra Club Request for Rehearing and Stay at 8; John Young Request for Rehearing at 2-4.

²⁵ Sierra Club Request for Rehearing and Stay at 6-7.

²⁶ *Id.* at 7. Mr. Young also asserts that Rio Grande has not shown sufficient demand to justify approval of the Rio Grande LNG Terminal under NGA section 3, where the 27 MPTA capacity Terminal has only one contract for 2 MPTA. John Young Request for Rehearing at 4-5. Mr. Young conflates the NGA section 3 and section 7 standards. Unlike under NGA section 7, the Commission does not assess market need under NGA section 3. Rather, as explained in the November 22 Order, DOE has exclusive jurisdiction over commodity exports, and issues inhering in that decision. November 22 Order, 169 FERC ¶ 61,131 at P 20. And here, DOE has already found that Rio Grande's exportation of

projects unless it finds that the proposed exportation will not be consistent with the public interest.”²⁷ Sierra Club asserts that NGA section 7 does not provide a presumption favoring approval of a project; rather, section 7 requires an affirmative demonstration that the project would provide net benefits to the American public.²⁸ Sierra Club states that the Commission is required to make an affirmative demonstration because section 7, unlike section 3, grants pipelines the power of eminent domain.²⁹

12. Second, Sierra Club and Mr. Young state that the Commission cannot rely on the contract between Rio Bravo and its affiliate, RioGas, as evidence of public need.³⁰ Sierra Club recognizes that the Commission often accepts contracts as evidence of public need, but states that the U.S. Court of Appeals for the D.C. Circuit (D.C. Circuit) recently explained that the Commission has not demonstrated that reliance on contracts is an appropriate indicator for public need when that contract serves a foreign customer.³¹

13. It is well established that precedent agreements are significant evidence of demand for a project.³² As the court stated in *Minisink Residents for Environmental Preservation &*

1,318 Bcf per year of domestically-produced natural gas to free trade nations from the Terminal is not inconsistent with the public interest.

²⁷ *Id.* (citing 15 U.S.C. § 717b(a)) (internal quotations and emphasis omitted).

²⁸ *Id.* (citing 15 U.S.C. § 717f(e)).

²⁹ *Id.* (citing *City of Oberlin, Ohio v. FERC*, 937 F.3d 599, 607 n.2 (D.C. Cir. 2019) (*City of Oberlin*)).

³⁰ Sierra Club Request for Rehearing and Stay at 7; John Young Request for Rehearing at 2-4.

³¹ Sierra Club Request for Rehearing and Stay at 7 (citing *City of Oberlin*, 937 F.3d at 606-07).

³² Certificate Policy Statement, 88 FERC ¶ 61,227 at 61,748 (precedent agreements, though no longer required, “constitute significant evidence of demand for the project”); *Sierra Club v. FERC*, 867 F.3d 1357, 1379 (D.C. Cir. 2017) (affirming Commission reliance on preconstruction contracts for 93 percent of project capacity to demonstrate market need); *Twp. of Bordentown v. FERC*, 903 F.3d 234, 263 (3d Cir. 2018) (“As numerous courts have reiterated, FERC need not ‘look[] beyond the market need reflected by the applicant’s existing contracts with shippers.’”) (quoting *Myersville Citizens for a Rural Cmty., Inc., v. FERC*, 183 F.3d 1301, 1311 (D.C. Cir. 2015)); *Appalachian Voices v. FERC*, No. 17-1271, 2019 WL 847199 at *1 (D.C. Cir. Feb. 19, 2019) (unpublished) (precedent agreements are substantial evidence of market need). *See also Midship Pipeline Co., LLC*, 164 FERC ¶ 61103, at P 22 (2018) (long-term precedent agreements for 64 percent of the system’s

Safety v. FERC, and again in *Myersville Citizens for a Rural Community, Inc., v. FERC*, nothing in the Certificate Policy Statement or in any precedent construing it suggest that the policy statement requires, rather than permits, the Commission to assess a project's benefits by looking beyond the market need reflected by the applicant's precedent agreements with shippers.³³ As noted above, 100 percent of the firm transportation capacity of the Rio Bravo Pipeline has been subscribed by RioGas for a 20-year term. Thus, there is sufficient evidence in the record to support our finding that the service to be provided by the pipeline is needed.

14. Nevertheless, Sierra Club and Mr. Young argue the Commission should look beyond the need for transportation of natural gas in interstate commerce evidenced by the precedent agreement in this proceeding and make a judgement based on how the gas will be used after it is delivered at the end of the pipeline and the interstate transportation is completed. However, under current Commission policy if there are precedent or service agreements, the Commission does not, and need not, make judgments about the needs of individual shippers³⁴ or ultimate end use of the commodity, and we see no justification to make an exception to that policy here.

15. The principle purpose of Congress in enacting the NGA was to encourage the orderly development of reasonably-priced gas supplies.³⁵ Thus, the Commission takes a broad look in assessing actions that may accomplish that goal. The Certificate Policy Statement explains that, in deciding whether to authorize the construction of new pipeline facilities, the Commission initially balances the public benefits of a proposed project against the potential

capacity is substantial demonstration of market demand); *PennEast Pipeline Co., LLC*, 164 FERC ¶ 61,098, at P 16 (2018) (affirming that the Commission is not required to look behind precedent agreements to evaluate project need); *NEXUS Gas Transmission, LLC*, 160 FERC ¶ 61,022, at P 41 (2017), *order on rehearing*, 164 FERC ¶ 61,054 (2018) (finding need for a new pipeline system that was 59 percent subscribed).

³³ *Minisink Residents for Envtl. Pres. & Safety v. FERC*, 762 F.3d 97, 110 n.10 (D.C. Cir. 2014); *see also Myersville Citizens for a Rural Cmty., Inc., v. FERC*, 183 F.3d 1301, 1311 (D.C. Cir. 2015). Further, Ordering Paragraph (G) of the November 22 Order requires that Rio Bravo file a written statement affirming that it has executed contracts for service at the levels provided for in their precedent agreements prior to commencing construction.

³⁴ Certificate Policy Statement, 88 FERC ¶ 61,227 at 61,744 (citing *Transcontinental Gas Pipe Line Corp.*, 82 FERC ¶ 61,084, at 61,316 (1998)).

³⁵ *NAACP v. FPC*, 425 U.S. 662, 669-70 (1976). *See generally Adelphia Gateway, LLC*, 169 FERC ¶ 61,220 (2019) (McNamee, Comm'r, concurrence) (elaborating on the purpose of the NGA)

adverse consequences.³⁶ This is essentially an economic test. Only when the benefits outweigh the adverse effects on economic interests will the Commission proceed to complete the environmental analysis, where other interests are addressed.

16. We believe it is appropriate to credit contracts for transportation of gas volumes ultimately destined for export as supporting a public convenience and necessity finding. Looking at the situation broadly, gas imports and exports benefit domestic markets; thus, contracts for the transportation of gas that will be imported or exported are appropriately viewed as indicative of a domestic public benefit. The North American gas market has numerous points of export and import, with volumes changing constantly in response to changes in supply and demand, both on a local scale, as local distribution companies' and other users' demand changes, and on a regional or national scale, as the market shifts in response to weather and economic patterns.³⁷ Any constraint on the transportation of domestic gas to points of export risks negating the efficiency and economy the international trade in gas provides to domestic consumers.

17. Moreover, Congress directed, in NGA section 3(c), that the importation or exportation of natural gas from or to "a nation with which there is in effect a free trade agreement requiring national treatment for trade in natural gas, shall be deemed to be consistent with the public interest, and applications for such importation or exportation shall be granted without modification or delay."³⁸ While this provision of the NGA is not directly implicated by Rio Bravo Pipeline's application under NGA section 7(c), it is indicative of the importance that Congress has placed on establishing reciprocal gas trade between the United States and those countries with which it has entered free trade agreements.

18. We view transportation service for all shippers as providing public benefits, and do not weigh different prospective end uses differently for the purpose of determining need. This includes shippers transporting gas in interstate commerce for eventual export, since

³⁶ *Certification of New Interstate Natural Gas Pipeline Facilities*, 88 FERC ¶ 61,227, at 61,745 (1999), *clarified*, 90 FERC ¶ 61,128, *further clarified*, 92 FERC ¶ 61,094 (2000) (Certificate Policy Statement).

³⁷ See, e.g., U.S. Energy Information Administration (EIA), *Increases in natural gas production from Appalachia affect natural gas flows*, March 12, 2019, <https://www.eia.gov/todayinenergy/detail.php?id=38652> (explaining how the increase in shale gas production in the Mid-Atlantic has altered inflows and outflows of gas to the Eastern Midwest and South Central Regions, and to Canada); EIA, *Natural Gas Weekly Update*, October 24, 2018, https://www.eia.gov/naturalgas/weekly/archivenew_ngwu/2018/10_25/ (pipeline explosion in Canada leads to lower U.S. gas imports and higher regional prices).

³⁸ 15 U.S.C. § 717b(a).

such transportation will provide domestic public benefits, including, as noted above: contributing to the development of the gas market, in particular the supply of reasonably-priced gas; adding new transportation options for producers, shippers, and consumers; boosting the domestic economy and the balance of international trade; and supporting domestic jobs in gas production, transportation, and distribution, and domestic jobs in industrial sectors that rely on gas or support the production, transportation, and distribution of gas.

19. With respect to the specifics of this case, the Rio Bravo Pipeline Project will provide a necessary service to the Rio Grande LNG terminal, which cannot operate without the gas to be delivered via the pipeline. Further, regardless of where the end-use consumers of the gas transported under the executed service agreements are located, the project will provide additional capacity to transport gas out of the Agua Dulce Market Area in Nueces, Texas. The Rio Bravo Pipeline Project will provide additional transportation options through interconnections with eight unaffiliated interstate and intrastate natural gas pipelines.³⁹ Furthermore, as discussed above, the production and sale of domestic gas contributes to the growth of the economy and supports domestic jobs in gas production, transportation, and distribution. These are valid domestic public benefits of the Rio Bravo pipeline, which do not require us to distinguish between gas supplies that will be consumed domestically and those that will be consumed abroad.

20. Finally, affiliation with a project sponsor does not lessen a shipper's need for capacity and its contractual obligation to pay for its subscribed service.⁴⁰ "[A]s long as the precedent agreements are long term and binding, we do not distinguish between pipelines' precedent agreements with affiliates or independent marketers in establishing market need for a proposed project."⁴¹ We find that the relationship between Rio Bravo and RioGas will neither lessen RioGas's need for capacity nor diminish RioGas's obligation to pay for its

³⁹ Application at 15.

⁴⁰ See *Mountain Valley*, 161 FERC ¶ 61,043, at P 45, *order on reh'g*, 163 FERC ¶ 61,197, at P 90, *aff'd*, *Appalachian Voices v. FERC*, No. 17-1271, 2019 WL 847199, at *3. See also, e.g., *Greenbrier Pipeline Co., LLC*, 101 FERC ¶ 61,122, at P 59, *reh'g denied*, 103 FERC ¶ 61,024.

⁴¹ *Millennium Pipeline Co. L.P.*, 100 FERC ¶ 61,277, at P 57 (2002) (citing *Tex. E. Transmission Corp.*, 84 FERC ¶ 61,044 (1998)). See also *City of Oberlin*, 937 F.3d at 605 (finding petitioners' argument that precedent agreements with affiliates are not the product of arms-length negotiations without merit, because the Commission explained that there was no evidence of self-dealing and stated that the pipeline would bear the risk of unsubscribed capacity); *Myersville Citizens for a Rural Community, Inc. v. FERC*, 783 F.3d 1301, 1311 (D.C. Cir. 2015) (rejecting argument that precedent agreements are inadequate to demonstrate market need).

capacity under the terms of its contract.⁴² When considering applications for new certificates, the Commission's sole concern regarding affiliates of the pipeline as shippers is whether there may have been undue discrimination against a non-affiliate shipper.⁴³ Here, no entity presented evidence of impropriety or self-dealing to indicate anti-competitive behavior or affiliate abuse.

2. Landowner Impacts

21. Sierra Club claims the Commission violated the Certificate Policy Statement by failing to identify the extent to which Rio Bravo has not secured voluntary easements and may seek to rely on eminent domain.⁴⁴ According to Sierra Club, without this information, the Commission is unable to conclude that Rio Bravo has taken appropriate steps to minimize adverse impacts on landowners, part of the Commission's analysis under the Certificate Policy Statement.⁴⁵

22. In the November 22 Order, the Commission indicated that it was satisfied that Rio Bravo has taken appropriate steps to minimize adverse impacts on landowners and surrounding communities.⁴⁶ The Rio Bravo Pipeline Project would impact approximately 1,997 acres of land during construction and approximately 1,224 acres of land during operation.⁴⁷ Approximately 66 percent of the pipeline right-of-way would be collocated with or adjacent or parallel to existing pipeline, roadway, railway, or utility rights-of-way.⁴⁸ Contrary to Sierra Club's claim, the NGA, the Commission's regulations, and the Certificate Policy Statement do not require the Commission to catalog the state of right-of-way agreements, particularly when there is no indication in the record to suggest that Rio Bravo has

⁴² Further, without compelling record evidence, we will not speculate on the motives of a regulated entity or its affiliate.

⁴³ See 18 C.F.R. § 284.7(b) (2019) (requiring transportation service to be provided on a non-discriminatory basis).

⁴⁴ Sierra Club Request for Rehearing and Stay at 5, 39.

⁴⁵ *Id.* at 40.

⁴⁶ November 22 Order, 169 FERC ¶ 61,131 at P 31.

⁴⁷ Final Environmental Impact Statement (EIS) at 2-25.

⁴⁸ *Id.* See, e.g., *Mountain Valley*, 161 FERC ¶ 61,043, at P 57 (2017) (noting that approximately 30 percent of the MVP Project's rights-of-way will be collocated or adjacent to existing pipeline, roadway, railway, or utility rights-of-way).

made inadequate efforts to negotiate these agreements.⁴⁹ Moreover, we note while the Hinojosas, who join Sierra Club's rehearing request, assert that they are affected landowners, they do not state that they face the threat of eminent domain or otherwise claim any impacts to their property. As we concluded in the November 22 Order, Rio Bravo took steps to mitigate adverse impacts where possible and feasible, in particular by collocating the majority of the pipeline route and incorporating reroutes to address landowner concerns and avoid environmental impacts,⁵⁰ and we are therefore satisfied that Rio Bravo took steps to minimize impacts to landowners.⁵¹

B. Environmental Impacts

1. Proposed Action Size

23. Sierra Club and Mr. Young assert that the Commission erred by evaluating and approving pipeline facilities and liquefaction facilities that are not limited to the minimum capacities adequate to produce the proposed 27 MTPA of LNG.⁵² Sierra Club states that a smaller pipeline system, possibly based on a single 48-inch-diameter pipeline rather than the proposed pair of 42-inch-diameter pipelines, and a smaller liquefaction system using five liquefaction trains, rather than the authorized six, could be "maxe[d] out"⁵³ to produce the 27 MTPA of LNG. Sierra Club contends that the Commission violated NEPA by failing to evaluate these smaller facilities as lower-impact, reasonable alternatives to Rio Grande's proposed facilities and violated the NGA by approving infrastructure that "exceeds what is necessary," "will not actually be used," and provides no public benefit.⁵⁴

24. In the other direction, Sierra Club contends that Rio Grande's request to build oversized facilities makes it reasonably foreseeable that Rio Grande will later seek to use the facilities' full capacity to produce 33 MTPA of LNG. The Commission failed to evaluate this scenario in a Supplemental Environmental Impact Statement, Sierra Club continues,

⁴⁹ See Certificate Policy Statement, 88 FERC ¶ 61,227, *clarified*, 90 FERC ¶ 61,128, *further clarified*, 92 FERC ¶ 61,094.

⁵⁰ Final EIS at 2-17; *infra* P 32.

⁵¹ November 22 Order, 169 FERC ¶ 61,131 at P 31; Final EIS at 3-26 to 3-27.

⁵² Sierra Club Request for Rehearing and Stay at 8-15; John Young Request for Rehearing at 5.

⁵³ Sierra Club Request for Rehearing and Stay at 11.

⁵⁴ *Id.*

as a reasonably foreseeable future action contributing to the cumulative effect analysis under NEPA.⁵⁵

25. Sierra Club raises the Driftwood LNG Project's single 48-inch-diameter pipeline⁵⁶ as a design model for a downsized 4 Bcf/d pipeline to serve the Rio Grande LNG Terminal, but Sierra Club does not consider the particular factors applicable to this project. In order to move a potential volume of natural gas in interstate or foreign commerce reliably and safely, an applicant will incorporate design margins for flexible operation to adapt to obstacles or imperfect conditions. For example, the Final EIS dismissed an alternative pipeline configuration using a single 60-inch-diameter pipeline in part because a single pipeline, unlike Rio Grande's proposal for paired 42-inch-diameter pipelines, could require shutting down or limiting gas delivery during maintenance and inspection activities.⁵⁷ Further, the design of individual pipeline systems reflect the applicant's design and operational objectives, including, among other things, unique terrain, construction techniques, and receipt and delivery pressure limitations. Thus, it is not a given that the Driftwood LNG Project's single 48-inch-diameter pipeline can be adopted as a design model for a downsized 4 Bcf/d pipeline to serve the Rio Grande LNG Terminal. In fact, a pair of 42-inch-diameter pipelines was recently proposed, evaluated, and authorized to provide 4 Bcf/d of transportation service for the recently approved Plaquemines LNG Project.⁵⁸ The Commission does not independently design systems for pipeline companies; rather, the Commission ensures that any proposed design is or will be required by the public convenience and necessity, based on an evaluation of adequacy, reliability, safety, environmental impacts, and other factors in the public interest.

26. Similarly, the liquefaction capacity typically includes design margins to account for variations in the actual liquefaction rate and availability. For example, liquefaction rates will change based on ambient temperatures and feed gas conditions that can vary, and an LNG terminal may operate at reduced levels or stop operation entirely as a result of maintenance activities or weather-related disruptions to LNG vessel traffic. In addition, Rio Grande proposes to truck a portion of LNG for distribution to refueling stations in south Texas,⁵⁹ which would necessitate liquefaction rates to be higher than export rates. Therefore, it

⁵⁵ *Id.* at 10, 13-15

⁵⁶ Sierra Club Request for Rehearing and Stay at 10 -13 (citing *Driftwood LNG LLC*, 167 FERC ¶ 61,054 (2019)).

⁵⁷ Final EIS at 3-26.

⁵⁸ *Venture Global Plaquemines LNG, LLC*, 168 FERC ¶ 61,204 (2019).

⁵⁹ Final EIS at 1-17 to 1-18. Rio Grande estimates that full use of the proposed trucking facilities would result in the road distribution of up to 0.4 MTPA. *Id.* at 1-18.

would be expected to have a maximum liquefaction rate that is higher than the export rate. Rio Grande provided mass balances for the design of the liquefaction and export facilities in its application and provided results of a reliability, availability, and maintainability analysis. Commission staff reviewed the mass balances for the liquefaction rates in various ambient and feed gas conditions along with the projected reduction in capacity that takes into account the projected reliability, availability, and maintainability and found that they are representative of Rio Grande's proposed export rate range and do not represent an overbuild.⁶⁰ We agree with this conclusion.

27. Finally, the information submitted by Sierra Club and John Young does not indicate that Rio Grande will use its liquefaction capacity of up to 5.87 MTPA per train to increase total LNG production in the future. Rio Grande's third-party engineering, procurement, and construction contracts filed with the Securities and Exchange Commission anticipate that even the higher-capacity trains will combine "to achieve a total of up to *twenty-seven* [MTPA]."⁶¹ In the November 22 Order, the Commission concluded that the six liquefaction trains and other LNG terminal facilities are not inconsistent with the public interest, and that all of the proposed facilities are an environmentally acceptable means of meeting a liquefaction and export target of 27 MTPA.⁶² As noted in the November 22 Order, and as Rio Grande has acknowledged, any expansion of export capacity or additional LNG exports vessels, or both, at the Rio Grande LNG Terminal would require Rio Grande to seek and receive additional authorizations from DOE, the Commission, and other applicable federal and state agencies.⁶³ Any incremental environmental impacts not evaluated as part of the instant proceeding would be analyzed prior to Commission action on any future request for authorization to expand the LNG Terminal's export capacity.⁶⁴ We affirm the conclusion in the November 22 Order that a

⁶⁰ See also Application, Resource Report 13, Section 13.4.1.4 (explaining that the terminal has a nominal liquification capacity of 27 MTPA (6 trains each producing a nominal 4.5 MTPA)).

⁶¹ U.S. Securities and Exchange Commission, NextDecade Corp., Form 10-Q Quarterly Report to U.S. Securities and Exchange Commission, Ex. 10.7 at 6 (filed Aug. 6, 2019) (defining "expanded facility") (emphasis added); *id.* Ex. 10.8 at 6 (same), <https://www.sec.gov/Archives/edgar/data/1612720/000155837019007245/0001558370-19-007245-index.htm>.

⁶² November 22 Order, 169 FERC ¶ 61,131 at PP 25, 32, 133.

⁶³ *Id.* P 131.

⁶⁴ *Id.* See, e.g., Office of Energy Projects, Draft Supplemental Environmental Impact Statement for the Magnolia Liquefied Natural Gas Production Capacity Amendment, Docket No. CP19-19-000 (filed Sept. 27, 2019) (evaluating proposal to optimize LNG terminal's final design including additional and modified process equipment);

supplemental EIS is not required because Sierra Club and Mr. Young have not shown “substantial changes in the proposed action that are relevant to environmental concerns” or “significant new circumstances or information relevant to environmental concerns.”⁶⁵

2. Alternatives Affecting Wetlands

28. Sierra Club contends that the Commission failed to take a hard look at alternatives that would relocate the Rio Bravo Pipeline Project’s Compressor Station 3 to an upland location along the pipeline route, outside of a wetland area.⁶⁶

29. The Commission took the requisite hard look at this pipeline route. Courts review both an agency’s stated project purpose and its selection of alternatives under the “rule of reason,” where an agency must reasonably define its goals for the proposed action, and an alternative is reasonable if it can feasibly achieve those goals.⁶⁷ When an agency is tasked to decide whether to adopt an applicant’s proposal, and if so, to what degree, a reasonable range of alternatives to the proposal includes rejecting the proposal, adopting the proposal, or adopting the proposal with some modification.⁶⁸ An agency may eliminate those alternatives that will not achieve a project’s goals or which cannot be carried out because they are too speculative, infeasible, or impractical.⁶⁹

Freeport LNG Development, L.P., 156 FERC ¶ 61,019 (2016) (authorizing increased LNG production capacity based in part on Commission staff’s Environmental Assessment); *Sabine Pass Liquefaction, LLC*, 146 FERC ¶ 61,117 (2014) (same).

⁶⁵ November 22 Order, 169 FERC ¶ 61,131 at P 131 (applying standards at 40 C.F.R. § 1502.9(c)(1) (2019)).

⁶⁶ Sierra Club Request for Rehearing and Stay at 15-18.

⁶⁷ See, e.g., *Friends of Southeast’s Future v. Morrison*, 153 F.3d 1059, 1066-67 (9th Cir. 1998) (stating that while agencies are afforded “considerable discretion to define the purpose and need of a project,” agencies’ definitions will be evaluated under the rule of reason). See also *City of Alexandria v. Slater*, 198 F.3d 862, 867 (D.C. Cir. 1999); 43 C.F.R. § 46.420(b) (2019) (defining “reasonable alternatives” as those alternatives “that are technically and economically practical or feasible and meet the purpose and need of the proposed action”).

⁶⁸ See *Theodore Roosevelt Conservation P’ship v. Salazar*, 661 F.3d 66, at 72-74 (D.C. Cir. 2011).

⁶⁹ *Fuel Safe Washington v. FERC*, 389 F.3d 1313, 1323 (10th Cir. 2004) (The Commission need not analyze “the environmental consequences of alternatives it has in good faith rejected as too remote, speculative, or . . . impractical or ineffective.”) (quoting *All*

30. The November 22 Order explained that the proposed LNG Terminal site, including Compressor Station 3, is the most environmentally preferable and practicable alternative.⁷⁰ Rio Bravo proposed to locate Compressor Station 3 within the boundary of the proposed LNG terminal site.⁷¹ Rio Grande analyzed five alternative sites for the LNG terminal, two of which contained alternative locations for Compressor Station 3.⁷² Rio Bravo stated that it needed to locate Compressor Station 3 close to Brownsville Navigation District's main utility corridor in an area accessible to State Highway 48 so that Compressor Station 3's operations and maintenance traffic would not interfere with the operation of the LNG Terminal.⁷³ Rio Bravo explained that it could not move Compressor Station 3 southward to completely avoid wetland areas because the southern area is needed by the LNG Terminal for its material offloading facility and onsite batching plants.⁷⁴ The Final EIS examined Sierra Club's request to relocate Compressor 3 outside of wetland areas. The Final EIS explained that in order to avoid all wetlands, the applicants would have to locate Compressor Station 3 at least 10 miles northwest of its proposed site.⁷⁵ We find that relocating Compressor Station 3 outside of the proposed LNG Terminal site is not an environmentally preferable alternative. Additional siting could impact landowners, waterbodies, noise sensitive areas, and viewsheds. Moreover, we note that wetlands impacts associated with the site will be mitigated through the use of compensatory mitigation required by the Army Corps of Engineers (Corps) CWA 404 permit.⁷⁶

Indian Pueblo Council v. United States, 975 F.2d 1437, 1444 (10th Cir. 1992) (internal quotation marks omitted)); *Natural Resources Defense Council, Inc. v. Morton*, 458 F.2d 827, 837-38 (D.C. Cir. 1972) (same). See also *Nat'l Wildlife Fed'n v. FERC*, 912 F.2d 1471, 1485 (D.C. Cir. 1990) (NEPA does not require detailed discussion of the environmental effects of remote and speculative alternatives).

⁷⁰ November 22 Order, 169 FERC ¶ 61,131 at P 75 (citing Final EIS at 5-6).

⁷¹ Application at 17.

⁷² Rio Grande and Rio Bravo April 19, 2018 Environmental Information Response, CWA Section 404 Permit at 2-2 – 2-8.

⁷³ *Id.* at 2-6.

⁷⁴ *Id.*

⁷⁵ *Id.* at 3-28; Volume 3 Part III at 119.

⁷⁶ *Infra* P 83.

3. Pipeline Route Realignment

31. Sierra Club contends that the Commission violated NEPA by failing to take a hard look at a pipeline route adjustment referenced in the Fish and Wildlife Service's (FWS) October 2, 2019 Biological Opinion.⁷⁷ Specifically, Sierra Club points to language in the Biological Opinion that states "[t]o further reduce direct impacts to ocelot habitat, [Rio Bravo] will re-route the pipeline between [milepost (MP)] 69.9 to MP 79.2, to avoid 62.6 acres of habitat. [Rio Bravo] will move the route south into existing row crop agricultural land and collocate with an existing transmission line [right-of-way]."⁷⁸ Sierra Club questions whether this re-route was analyzed in the Final EIS.

32. The November 22 Order certificated the preferred pipeline route that Commission staff analyzed in the Final EIS. As discussed further below,⁷⁹ the November 22 Order also conditioned the LNG Terminal and pipeline authorizations on Rio Grande's and Rio Bravo's implementation of the mandatory measures contained in FWS's Biological Opinion.⁸⁰ The Biological Opinion requires Rio Grande and Rio Bravo to implement certain applicant-proposed conservation measures, including realigning the pipeline route to avoid 62.6 acres out of 135.9 acres of ocelot and jaguarundi habitat.⁸¹ FWS issued its Biological Opinion on October 2, 2019, five months after Commission staff issued the Final EIS on April 26, 2019. Because this realignment differs from the certificated route, and potentially implicates lands and resources that were not previously analyzed in the Final EIS, Rio Bravo must submit for

⁷⁷ Sierra Club Request for Rehearing and Stay at 18-20.

⁷⁸ FWS October 2, 2019 Biological Opinion at 22 (Biological Opinion).

⁷⁹ See *infra* PP 84-89.

⁸⁰ November 22 Order, 169 FERC ¶ 61,131 at P 91 ("With imposition of the conditions required herein, *which include all measures required by FWS in its Biological Opinion*, we find construction and operation of the projects as approved will be an environmentally acceptable action and not inconsistent with the public interest.") (emphasis added).

⁸¹ See Biological Opinion at 5 (describing Rio Bravo's Voluntary Conservation Measure 2 as "[Rio Bravo] has realigned the pipeline route to avoid 62.6 acres out of 135.9 acres of ocelot and jaguarundi habitat"), 22 ("[t]o further reduce direct impacts to ocelot habitat, [Rio Bravo] will re-route the pipeline between MP 69.9 to MP 79.2, to avoid 62.6 acres of habitat. [Rio Bravo] will move the route south into existing row crop agricultural land and collocate with an existing transmission line [right-of-way].") and 34 (requiring Rio Grande and Rio Bravo to "fully implement the Voluntary Conservation Measures").

Commission approval a variance request pursuant to Environmental Condition 6,⁸² or an amendment, as appropriate. Any variance request must be supported by detailed alignment sheets and aerial photographs, landowner approval, and all environmental and cultural surveys and clearances.⁸³ If unable to obtain approval from any newly-affected landowners along the route realignment, Rio Bravo would be required to file an amendment request. To avoid and minimize impacts to the ocelot and jaguarundi in accordance with the conditions of the incidental take statement, Rio Bravo is required to, prior to receiving authorization to commence construction of the pipeline facilities, request and receive approval from the Commission for the route realignment it agreed to with FWS.⁸⁴

33. In the alternative, Sierra Club argues that even if the Final EIS analyzed the pipeline realignment included in the Biological Opinion, the discrepancies in the description of ocelot and jaguarundi habitat impacts between the Final EIS and the Biological Opinion render the Final EIS deficient.⁸⁵ We disagree. The Final EIS did not provide specific acreage estimates of ocelot and jaguarundi habitat that would be impacted by the project. Rather, the Final EIS explained that FWS, in consultation with Rio Grande and Rio Bravo, had identified prime areas of ocelot habitat along the proposed pipeline between mileposts 70 and 115.⁸⁶ The Final EIS further explained that FWS would work with Rio Grande and Rio Bravo to identify any specific areas of high quality habitat where impacts should be avoided or minimized and that final mitigation plans for the loss of ocelot habitat would be determined prior to the conclusion of the Endangered Species Act (ESA) consultation process.⁸⁷ As discussed above, the Biological Opinion reflects the culmination of these mitigation planning efforts.

⁸² November 22 Order, 169 FERC ¶ 61,131 at Environmental Condition 6 (contemplating route adjustments resulting from implementation of Endangered Species Act mitigation).

⁸³ *See id.*

⁸⁴ *See* Commission staff January 14, 2020 Memo (containing email correspondence from FWS, which clarifies the route of the Rio Bravo-proposed pipeline re-alignment and provides an alignment sheet depicting the route that Rio Bravo and FWS agreed would avoid impacting 62.6 acres of ocelot and jaguarundi habitat).

⁸⁵ Sierra Club Request for Rehearing and Stay at 19.

⁸⁶ Final EIS at 4-157.

⁸⁷ *Id.*

4. Commercial Fishing and Tourism Impacts

a. Commercial Fishing and Shrimping Impacts

34. Sierra Club asserts that the Final EIS failed to take a hard look at the impacts of LNG vessel transit obstruction on commercial fishing and shrimping operations using the Brownsville Shipping Channel.⁸⁸ Sierra Club explains that commercial and sport fisherman will be impacted by increased vessel traffic, primarily caused by the Coast Guard's authority to restrict marine traffic and establish security zones for LNG carriers.⁸⁹ Sierra Club states that LNG vessel arrivals and departures will block fishing and other traffic for up to three hours, but the Final EIS did not evaluate how those delays will impact commercial fishers.

35. In fact, the Final EIS determined that the project would result in direct, minor impacts on commercial fishery vessel operators resulting from the delays during LNG carrier transit.⁹⁰ As described by Sierra Club,⁹¹ LNG vessel arrivals and departures will block fishing and other traffic for up to three hours, but the fishing vessels could follow behind outbound LNG carriers at an approved distance.⁹² The Final EIS found that concurrent operation of the Rio Grande LNG, Texas LNG, and Annova LNG projects would result in permanent and moderate impacts to commercial fishery vessel operators, due to a 48 percent increase in vessel traffic in the Brownsville Shipping Channel which will cause delays in fishing vessels reaching the Gulf of Mexico or fishing destinations in the Laguna Madre.⁹³

36. Additionally, Sierra Club asserts that the Final EIS does not address how aquatic life mortality caused by the LNG project will impact commercial fishing.⁹⁴ The Final EIS determined, and we agree, that the project is not expected to impact the yield of commercial fisheries in the project area.⁹⁵ As discussed in the Final EIS, impacts on such resources would be minor, and with implementation of required mitigation, impacts on

⁸⁸ Sierra Club Request for Rehearing and Stay at 20-23.

⁸⁹ *Id.* at 20 (citing Final EIS at 4-232).

⁹⁰ Final EIS at 4-222, 4-467.

⁹¹ Sierra Club Request for Rehearing and Stay at 20-21.

⁹² Final EIS at 4-467.

⁹³ *Id.*

⁹⁴ Sierra Club Request for Rehearing and Stay at 22.

⁹⁵ Final EIS at 4-221 to 4-222.

essential fish habitat and the species and life stages that utilize the essential fish habitat would be permanent but minor.⁹⁶

37. Further, the Final EIS evaluated the cumulative impacts on aquatic resources caused by construction and operation of the Rio Grande LNG Terminal, Texas LNG, and Annova LNG projects and found that the impacts on aquatic resources would be additive.⁹⁷ As stated above, in addition to the Rio Grande LNG Terminal, the Texas LNG and Annova LNG projects will also impact essential fish habitat; however, all of the projects are required to mitigate any permanent impacts to these habitats under their Clean Water Act (CWA) section 404 permits.⁹⁸ Thus, the Final EIS found the cumulative impacts of the projects on essential fish habitat would be minor.⁹⁹ The Final EIS found that construction of the projects would dredge a large portion of the Brownsville Shipping Channel for an extended period of time and would result in increases in turbidity and decreases in dissolved oxygen.¹⁰⁰ The Final EIS stated that these effects would reduce the prey available for predators in the area and that more mobile species would relocate to find suitable habitat.¹⁰¹ However, the Final EIS explained that these effects would be moderate but temporary, ending once construction ceases.¹⁰² The Final EIS evaluated the effects of concurrent pile-driving activities and found, with mitigation measures, the

⁹⁶ *Id.* at 4-103 to 4-126, 4-467.

⁹⁷ *Id.* at 4-440.

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.* We note that Mr. Young also expressed concern about the potential cumulative effects of dredging in the Brownsville Shipping Channel from the Rio Grande LNG, Texas LNG, and Annova LNG projects, but he did not address the Commission's discussion of this issue in the November 22 Order or list specific points of error in the November 22 Order. Nonetheless, we note that the Final EIS discussed the cumulative dredging impacts for the Rio Grande LNG, Texas LNG, Annova LNG, and Jupiter Export Terminals, and the Brazos Island Harbor Channel Improvement project and determined that these projects would have the greatest cumulative effect on surface water resources due to turbidity and sedimentation. These impacts would be minor to moderate, but temporary, and each project is required to comply with water quality standards; therefore, sedimentation and turbidity levels would return to the pre-dredging conditions following the cessation of dredging activities. Final EIS at 4-425 to 4-426.

¹⁰¹ Final EIS at 4-440.

¹⁰² *Id.*

effects of pile-driving on aquatic species would be minor.¹⁰³ The Final EIS also evaluated the impacts of concurrent operation of the projects and found that cooling and ballast water discharges would have temporary and negligible impacts on aquatic species.¹⁰⁴ The projects must comply with the CWA to minimize impacts on surface water, and to avoid, minimize, or mitigate wetland impacts.¹⁰⁵ The Final EIS found, and we agree, that although the Rio Grande LNG project will contribute to the cumulative impacts on aquatic resources, the impacts would not be significant.¹⁰⁶

b. Tourism Impacts

38. Sierra Club states that the Final EIS determined that the Rio Grande LNG Terminal would have moderate impacts on tourism,¹⁰⁷ but failed to include how impacts to wildlife,¹⁰⁸ recreational fishing,¹⁰⁹ short-term rentals,¹¹⁰ and industrial development would impact tourism.¹¹¹

39. We disagree. The Final EIS evaluated how wildlife impacts would affect tourism. The Final EIS explained that impacts on tourism, including nature-based and eco-tourism, would generally be greatest during construction of the Rio Grande LNG Terminal.¹¹² Following construction, the LNG Terminal would be the primary source of permanent impacts on tourism as the pipelines would be buried and the associated aboveground facilities would be in remote areas, offering limited visibility and mitigating noise impacts.¹¹³ To mitigate impacts on visual receptors and operational noise from the LNG Terminal,

¹⁰³ *Id.* at 4-438 to 4-439.

¹⁰⁴ *Id.* at 4-439.

¹⁰⁵ *Id.* at 4-440.

¹⁰⁶ *Id.*

¹⁰⁷ Sierra Club Request for Rehearing and Stay at 24 (citing Final EIS at 4-467).

¹⁰⁸ *Id.*

¹⁰⁹ *Id.* at 25.

¹¹⁰ *Id.* at 26.

¹¹¹ *Id.*

¹¹² Final EIS Volume 3 Part III at 6, 21, 93.

¹¹³ *Id.*

Rio Grande would use ground flares, grey tank coloring, horticultural plantings, and the construction of a levee that would obstruct most construction activities and low-to-ground operational facilities from view.¹¹⁴ The Final EIS found, and we agree, that no visual or noise impacts on South Padre Island beaches and associated tourism would occur, given that the beaches face the ocean and are 5 miles away.¹¹⁵

40. The Final EIS examined impacts to several nature tourism sites. The Final EIS determined that aside from the Lower Texas Coast Site 039 in the Bahia Grande portion of the Laguna Atascosa National Wildlife Refuge, most nature tourism facilities in the National Wildlife Refuge are located about 9 miles north of the LNG terminal site and would not be impacted by construction or operation of the terminal.¹¹⁶ The Final EIS also evaluated the impacts at Boca Chica Beach, a visitor-oriented National Wildlife Refuge site, located about 5.5 miles southeast of the LNG Terminal, and found that construction noise would not be perceivable at this site.¹¹⁷ With regard to the Lower Texas Coast Site 039, the Final EIS found that this site would be exposed to noise from the LNG Terminal construction, including pile driving, which is louder than ambient noise levels.¹¹⁸ Additionally, the Final EIS determined that concurrent operation of the Rio Grande LNG, Texas LNG, and Annova LNG projects will have a significant impact on visual resources from recreational areas, including the Laguna Atascosa National Wildlife Refuge.¹¹⁹ However, the projects are not anticipated to have an impact to beach visitors, because the South Padre Island beaches face eastward toward the Gulf of Mexico, away from the project

¹¹⁴ *Id.*

¹¹⁵ *Id.*

¹¹⁶ *Id.* at 4-217.

¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ *Id.* at 4-466 to 4-467.

site.¹²⁰ Additionally, the view of the projects' facilities will be obstructed by dunes,¹²¹ beach hotels, and condominiums along the South Padre Island shore.¹²²

41. We disagree with Sierra Club's claim that the Final EIS did not address how impacts to recreational fishing would affect the tourism industry.¹²³ In response to Sierra Club's comments, the Final EIS recognized the interdependency between tourism and recreational fishing and stated that recreational fishing is a major tourist draw in the Rio Grande Valley.¹²⁴ The Final EIS determined that construction and operation of the LNG Terminal could affect recreational fishing through restrictions in fishing access, increases in noise, and changes in vessel traffic, but would not restrict fishing access to bays in the project area or in the Gulf of Mexico.¹²⁵ Rio Grande is working with relevant agencies to provide a parking and fishing area on the western bank of the Bahia Grande Channel to mitigate these impacts.¹²⁶ Additionally, the Final EIS found that operational noise could cause anglers to visit other sites not immediately adjacent to the LNG Terminal site; but, the number of recreational fishing visits to the general project area would not change.¹²⁷ The Final EIS recognized impacts on recreational fishing boats for trips that begin from Port Isabel or South Padre Island, in the form of delays at Brazos Santiago Pass, if they arrive during LNG carrier transit.¹²⁸ The Final EIS also found that operation of the Rio Grande LNG Terminal, Texas LNG, and Annova LNG Terminals will result in permanent and moderate cumulative impacts to tourism and recreational fishing, because a 48 percent increase in LNG vessel

¹²⁰ *Id.* at 4-216, 4-466.

¹²¹ *Id.* at 4-217 (finding the Rio Grande LNG Terminal will have no visual impacts to the Boca Chica Beach because the terminal views of the terminal will be obstructed by sand dunes).

¹²² See Texas LNG Terminal Final EIS at 4-153, 4-332 (CP16-116-000) (Texas LNG Final EIS) (stating that the Rio Grande LNG Terminal, Texas LNG, and Annova LNG projects would have no visual impacts at South Padre Island beaches because views of the terminals would be obstructed by beach hotels, and condominiums).

¹²³ Sierra Club Request for Rehearing and Stay at 24.

¹²⁴ Final EIS Volume 3 Part III at 96; Final EIS at 4-219 to 4-220.

¹²⁵ *Id.* at 4-219.

¹²⁶ *Id.*

¹²⁷ *Id.* at 4-220.

¹²⁸ *Id.* at 4-220, Volume 3 Part III at 6, 21, 93.

traffic will cause delays in recreational fishing vessel access to the Brownsville Shipping Channel to reach the Gulf of Mexico.¹²⁹

42. We also disagree with Sierra Club's assertion that the Final EIS did not consider how impacts to commercial fishing can affect tourism and vice versa.¹³⁰ As explained above, the Final EIS determined that minor, temporary, and permanent impacts on commercial fishing in the Brownsville Shipping Channel would occur from construction and operation of the LNG Terminal; however, the majority of the commercial fishing industry is based on offshore shrimping and fishing. As a result, the project is unlikely to result in a measurable effect on commercial landings in the project area.¹³¹ Further, the Final EIS discussed potential impacts to charter boat tours, including those designed for viewing maritime activities.¹³² As stated above, the Final EIS evaluated the cumulative effects of concurrent operation of the Rio Grande LNG, Texas LNG, and Annova LNG projects on tourism and commercial fishing and found that the projects would result in permanent and moderate impacts, due to a 48 percent increase in vessel traffic in the Brownsville Shipping Channel which will delay fishing or tourist vessels accessing the Gulf of Mexico or fishing destinations in the Laguna Madre.¹³³

43. Sierra Club argues that the Final EIS did not consider how an increased demand for short-term rentals used by the Rio Grande LNG Terminal, Texas LNG, Annova LNG, and Rio Bravo Pipeline Project construction workers would impact tourism.¹³⁴ The Final EIS stated that within the affected area, a total of 38,212 housing units would be available for rent to the workforce, including hotel and motel rooms, vacant housing units, and RV sites.¹³⁵ The Final EIS found the project's workers would occupy about 2.8 and 3.5 percent of the currently available housing, indicating sufficient lodging units would be available to accommodate the non-resident workers, resulting in minor and temporary impacts on the availability of housing units.¹³⁶ We find that the proposed construction schedules for the

¹²⁹ *Id.* at 4-678.

¹³⁰ Sierra Club Request for Rehearing and Stay at 27.

¹³¹ Final EIS Volume 3 Part III at 103.

¹³² *Id.* at 4-216.

¹³³ *Id.* at 4-467.

¹³⁴ Sierra Club Request for Rehearing at 26.

¹³⁵ *Id.* at 4-225.

¹³⁶ *Id.*

Rio Grande LNG Terminal, Texas LNG, Annova LNG, and Rio Bravo Pipeline Project could coincide with other demands for housing and temporary accommodations for tourism.¹³⁷ Non-local workers hired temporarily, who seek hotel accommodations, could potentially compete with seasonal visitors in Cameron County, specifically, the destination locations of South Padre Island, Port Isabel, Harlingen, and Brownsville.¹³⁸ However, given the number of hotel rooms in the vicinity of the projects, we do not anticipate serious disruptions to short-term tourism housing.¹³⁹

44. Sierra Club states that industrial development will discourage future investment in tourism industries. Sierra Club's assertion is unsupported and speculative. The Final EIS acknowledged that, although the land proposed to be developed for the Rio Grande LNG Terminal, Texas LNG, and Annova LNG projects are zoned for industrial use, the concurrent construction and operation of three large industrial facilities as well as the associated non-jurisdictional facilities would result in change of the character of the landscape.¹⁴⁰ We can reasonably assume that this change would cause some visitors to choose to vacation elsewhere or alter their recreation activities to destinations in the region that are further from the project sites. However, given the extent of tourism areas (including birding areas, National Wildlife Refuges, National Historic Landmarks, and beaches) and the distance of these areas from the LNG Terminal sites, neither construction or operation would be expected to significantly impact tourism at these locations.¹⁴¹ The Final EIS found and we agree that the projects may cause a change in visitation patterns to the area, but we do not expect the projects to change in the number of visits to the project area.¹⁴² Accordingly, we find that employment in the tourism industry is not likely to be significantly affected by the projects.¹⁴³

¹³⁷ See Texas LNG Final EIS at 4-147.

¹³⁸ *Id.*

¹³⁹ *Id.*

¹⁴⁰ Final EIS at 4-467.

¹⁴¹ *Id.* at ES-11, 4-217 to 4-219; Volume 3 Part III at 21 (stating that construction and operation of the project is not expected to impact the birding, nature-based, or eco-tourism industries).

¹⁴² *Id.* at 4-218 to 4-219.

¹⁴³ *Id.* at 4-219.

c. Mitigation for Commercial and Tourism Impacts

45. Sierra Club asserts that the Final EIS failed to include appropriate mitigation measures to compensate for the impacts of the Rio Grande LNG project on commercial fishing and tourism.¹⁴⁴ Sierra Club cites to other LNG projects that the Commission approved “only contingent upon mitigation packages” that required companies to provide funds to commercial fisherman, public interest trusts, and marine habitat and mammal protection.¹⁴⁵

46. As discussed above, the Final EIS found that the Rio Grande LNG project would result in direct, minor impacts on commercial fishery vessel operators due to delays caused by LNG carrier transit.¹⁴⁶ Additionally, impacts from the project on aquatic resources would be minor and, with the implementation of required mitigation, impacts on essential fish habitat and the species and life stages that use the essential fish habitat would be permanent but minor.¹⁴⁷ Thus, the Final EIS determined that the project is not expected to impact commercial fisheries in the project area.¹⁴⁸ Accordingly, we find the mitigation measures proposed by the applicant sufficient to protect commercial fishers and will not require monetary compensation.

47. Additionally, the Final EIS determined that the Rio Grande LNG Terminal’s noise and visual impacts on beachgoers, bird-watchers, tour operators, and other visitors would occur only in the immediate area of the LNG Terminal site.¹⁴⁹ To ensure noise sensitive areas are not significantly affected by operational noise, Environmental Conditions 35, 36, and 38 require the applicants to conduct post-construction noise surveys after each noise-producing unit (e.g., each liquefaction train and compressor) is placed into service and after the entire LNG Terminal (including Compressor Station 3) is placed into service.¹⁵⁰ In

¹⁴⁴ Sierra Club Request for Rehearing and Stay at 28.

¹⁴⁵ *Id.*

¹⁴⁶ Final EIS at 4-222.

¹⁴⁷ *Id.* at 4-124 to 4-125, 4-222. Given the temporary, minor impacts on essential fish habitat, the National Marine Fisheries Service did not provide any conservation recommendations for the project under the Magnuson-Stevens Fishery Conservation and Management Act. November 22 Order, 169 FERC ¶ 61,131 at P 82; Final EIS at 4-126.

¹⁴⁸ Final EIS at 4-222.

¹⁴⁹ *Id.* at 4-216.

¹⁵⁰ November 22 Order, 169 FERC ¶ 61,131 at P 106; Final EIS at 5-18.

the November 22 Order, the Commission determined that with the implementation of the mitigation measures proposed by the applicants and required by the environmental conditions, construction and operation of the projects would not result in significant noise impacts on residents and surrounding communities.¹⁵¹ Further, to minimize visual impacts of the aboveground structures, the November 22 Order stated that Rio Grande would use gray LNG storage tanks, maintain vegetation plantings, and construct a storm surge protection levee, which would obscure most construction activities and low-to-ground operational facilities from view.¹⁵² We find these measures sufficient to mitigate noise and visual impacts on tourism and do not find monetary compensation necessary.

5. Air Quality Impacts

a. Cumulative Impacts from NO₂ Emissions

48. Sierra Club contends that the Commission failed to support the conclusion in the Final EIS that impacts on local and regional air quality would not be significant.¹⁵³ First, Sierra Club argues that the analysis in the Final EIS is flawed because the Commission failed to justify its conclusion that the predicted exceedances of the 1-hour NO₂ National Ambient Air Quality Standard (NAAQS) resulting from cumulative impacts would not have significant health impacts.¹⁵⁴

49. The EIS appropriately relied upon federal air emission limits under the Clean Air Act (CAA), including the limits prescribed under the NAAQS, and staff analyzed the estimated concentration for criteria pollutants and averaging periods accordingly.¹⁵⁵ In fact, the EIS presented air quality impacts modeling that extended beyond the federal and state required analyses, with the Rio Grande LNG Terminal modeling examining emissions from both mobile sources and terminal operations, and the cumulative impacts modeling examining mobile and operational emissions from all three Brownsville LNG Terminals.¹⁵⁶

50. This modeling showed that the operational emissions for the Rio Grande LNG Terminal would not exceed the NAAQS for 1-hour NO₂. The project would contribute to

¹⁵¹ November 22 Order, 169 FERC ¶ 61,131 at P 106; Final EIS at 5-18.

¹⁵² November 22 Order, 169 FERC ¶ 61,131 at P 95; Final EIS at ES-10.

¹⁵³ See Sierra Club Request for Rehearing and Stay at 28.

¹⁵⁴ *Id.* at 29.

¹⁵⁵ Final EIS at 4-475.

¹⁵⁶ *Id.* at 4-264, 4-266.

cumulative emissions in an uninhabited area between the fence lines of the Rio Grande LNG and Texas LNG Terminals resulting in emissions of up to 196 parts per billion (ppb), which exceeds the 1-hour NO₂ NAAQS of 100 ppb.¹⁵⁷ Despite these emissions increases, the operations of the Rio Grande LNG Terminal will not cause the re-designation of the attainment status for the air quality control region and no violation of the CAA is expected to occur because the NAAQS will not be exceeded for the region.¹⁵⁸ Moreover, the localized exceedance estimate is conservative, as the analysis reflects conditions occurring only when all three terminals will be loading LNG vessels simultaneously.¹⁵⁹ Nonetheless, the Final EIS assessed the project's air quality impacts on human health, explaining that it is unlikely, but possible, that people may be exposed to elevated NO₂ levels in the immediate vicinity of the facilities.¹⁶⁰ The EIS went on to explain that concentrations of 1-hour NO₂ are expected to disperse before reaching the nearest residential areas of Port Isabel and Laguna Heights, which have estimated ambient concentrations of less than 75 ppb, well below the 1-hour NO₂ NAAQS of 100 ppb.¹⁶¹ Consequently, the EIS concluded, and we agree, that the cumulative impacts on regional air quality from NO₂ would be long-term during the operational life of the project, but minor.¹⁶²

b. Cumulative Impacts from Ozone Emissions

51. Sierra Club next claims that the Commission failed to adequately assess the cumulative impacts of ozone-forming emissions from the Rio Grande LNG Terminal.¹⁶³ Sierra Club argues that the Commission improperly assumed, because the Annova LNG and Texas LNG Terminals would emit less than 10 percent of Rio Grande LNG Terminal's emissions of the ozone precursor, NO_x, that the three Brownsville LNG Terminals would not cause a cumulative ozone increase of more than 10 percent.¹⁶⁴ Sierra Club argues, however, that because the Rio Grande LNG Terminal will cause ozone levels to reach 68.6 ppb—1.4 ppb below the 8-hour 70 ppb standard—a 10 percent increase in ozone would

¹⁵⁷ *Id.* at 4-475, 4-479, Vol. 2, Appendix P, P-4, Table O.1-3.

¹⁵⁸ *Id.* at 5-15.

¹⁵⁹ *Id.* at Vol. 2, Appendix P, P-5.

¹⁶⁰ *Id.* at 4-475, Vol. 2, Appendix P, P-5.

¹⁶¹ *Id.*

¹⁶² *Id.* at 5-21.

¹⁶³ Sierra Club Request for Rehearing and Stay at 29.

¹⁶⁴ *Id.*

raise ambient concentrations to 69.76 ppb.¹⁶⁵ Hence, Sierra Club claims that any additional emissions increase from any other sources would result in a violation of the NAAQS standard and argues this is likely to be the case because the EIS omitted mobile emissions from LNG vessels and emissions associated with an increased facility output to 33 MTPA.¹⁶⁶

52. The Final EIS assessed the potential for direct and cumulative impacts on ozone levels in the Rio Bravo Project area.¹⁶⁷ Based on a conservative analysis done for the Texas Commission on Environmental Quality (TCEQ), the project would result in 2,058 tons of ozone-forming NO_x emissions per year¹⁶⁸ and the 8-hour maximum predicted increase of ozone would result in 11.6 ppb of emissions. When these ozone emissions are considered with the background ozone concentration of 57 ppb, they would result in ambient ozone concentrations of 68.6 ppb, which would not exceed the 8-hour ozone standard of 70 ppb.¹⁶⁹

53. The Annova LNG and Texas LNG Terminal operations would emit ozone precursor pollutants NO_x and volatile organic compounds (VOC), and therefore contribute to the cumulative impacts on regional ozone emissions. However, neither would be a major source and TCEQ did not require emissions from these not yet built projects to be included in Rio Grande's ozone modeling. Accordingly, the Final EIS conducted additional conservative analysis above and beyond what the TCEQ permit required by considering all the Brownsville LNG Terminals' operational NO_x emissions. These emissions would result in an increase of 178 tons per year (tpy) of NO_x,¹⁷⁰ which, as discussed in the Final EIS, would result in less than a 10 percent increase of the Rio Grande LNG Terminal's NO_x emissions.¹⁷¹ Such linear analysis is conservative and results in estimates that are likely much higher than what would occur. Nonetheless, as Sierra Club itself states,¹⁷² such NO_x

¹⁶⁵ *Id.* (citing Final EIS at 4-478).

¹⁶⁶ *Id.*

¹⁶⁷ Final EIS at 4-268-69, 4-478.

¹⁶⁸ *Id.* at 4-262, Table 4.11.1-7.

¹⁶⁹ *Id.* at 4-269, 4-478.

¹⁷⁰ The Texas LNG Terminal's operational emissions are 96.3 tons of NO_x per year. Texas LNG Final EIS at 4-181, Table 4.11.1-6. The Annova LNG Terminal's operational emissions are 82 tons of NO_x per year. Annova LNG Terminal Final EIS at 4-181, Table 4.11.1-6 (CP16-480-000) (Annova LNG Final EIS).

¹⁷¹ Final EIS at 4-478.

¹⁷² Sierra Club Request for Rehearing and Stay at 29.

increases could result in ozone increases that are close to, but ultimately would not exceed, the 8-hour NAAQS.¹⁷³

54. Sierra Club argues that the Commission is required to include emissions that would occur if the Rio Grande LNG Terminal increased its output to 33 MPTA. We disagree. The terminal facilities are only authorized to produce 27 MTPA. As discussed in the November 22 Order and above, if Rio Grande sought to expand the Rio Grande LNG Terminal's export capacity, further authorization would be required and associated impacts would be analyzed.¹⁷⁴

55. Although the ozone modeling for the Rio Grande LNG Terminal did not include operational emissions from the Annova LNG and Texas LNG Terminals, or LNG vessel mobile emissions servicing the three Brownsville LNG Terminals, if we consider these sources' potential impact on ozone using the ozone precursor NO_x, NO_x emissions would increase by 1,417.2 tpy¹⁷⁵ to a total of approximately 3,475 tpy of NO_x.¹⁷⁶ These increases in NO_x could contribute to violations of the ozone NAAQS. If we consider the relationship between ozone and NO_x from the Rio Grande LNG Terminal ozone model and apply that proportional factor to scale these ozone impacts to the 3,475 tpy of NO_x,¹⁷⁷ we conservatively predict that ozone levels in the area could increase by 19.6 ppb.¹⁷⁸ This could

¹⁷³ *Id.*; Final EIS at 4-478.

¹⁷⁴ See November 22 Order, 169 FERC ¶ 61,131 at PP 129-131; *supra* P 27.

¹⁷⁵ This figure includes: 928.7 tpy of NO_x from operational mobile emissions near the Rio Grande LNG Terminal, 96.3 tpy of NO_x from operational facility emissions and 142.6 tpy of NO_x of operational mobile emissions near the Texas LNG Terminal, and 82 tpy of NO_x from operational facility emissions and 167.6 tpy of NO_x of operational mobile emissions near the Annova LNG Terminal. See Final EIS at 4-162, Table 4.11.1-7; Texas LNG Final EIS at 4-181, Table 4.11.1-6; Annova LNG Final EIS at 4-185 to 4-186, Tables 4.11.1-4, 4.11.1-5.

¹⁷⁶ Commission staff calculated this figure by adding 1,417.2 tons of NO_x from n.175 to 2,058 tpy of operational NO_x facility emissions from the Rio Grande LNG Terminal. Final EIS at 4-162, Table 4.11.1-7.

¹⁷⁷ Commission staff compared the magnitude of emissions on a proportional basis. See Rio Grande LNG Project, Rio Bravo Pipeline Project, Air Quality Modeling Report Terminal and Compressor Station 3, January 2018.

¹⁷⁸ Commission staff calculated this increase by using the following equation: 11.6 ppb + 11.6 ppb (1417.2 ppb/2058.7 ppb) = 19.6 ppb.

result in a total ambient impact of 76.5 ppb,¹⁷⁹ exceeding the 70 ppb ozone NAAQS.¹⁸⁰ As discussed, the analysis of all three terminals' operational NO_x emissions is conservative.¹⁸¹ In light of this worst case scenario based on the combined results of the ozone scaling showing the cumulative ozone levels exceed the ozone NAAQS and the cumulative NO₂ modeling showing areas between the facility fence lines will exceed the 1-hour NO₂ NAAQS,¹⁸² we find that the cumulative impact on regional air quality from ozone could be significant.

56. Rio Grande has taken steps to mitigate ozone emissions. Pursuant to the state air quality rules under the CAA, Rio Grande assessed Best Available Control Technologies (BACT) for criteria air pollutants including ozone precursors VOC and NO_x for all of the terminal's emissions sources.¹⁸³ There are a variety of mitigation measures described in detail in Rio Grande's Prevention of Significant Deterioration permit.¹⁸⁴ Given that the

¹⁷⁹ Commission staff calculated this figure by adding the ambient ozone level of 57 ppb to the 19.6 ppb increase from stationary and mobile emissions.

¹⁸⁰ Although this type of linear scaling is not as accurate as modeling ozone impacts, the use of NO_x emissions as a proxy for ozone emissions is an accepted methodology for purposes of NEPA. *See Concerned Citizens & Retired Miners Coal. v. United States Forest Serv.*, 279 F. Supp. 3d 898, 917 (D. Ariz. 2017) (explaining that an agency may focus on ozone precursors when assessing ozone); *Border Power Plant Working Group v. Department of Energy*, 260 F.Supp. 2d 997, 1022 (S.D. Cal. 2003) (finding that the agency acted reasonably by recognizing that nitrogen oxides and ozone will be closely and positively correlated, analyzing the project's nitrogen oxide emissions, and reasonably extrapolated from this the impact on ozone).

¹⁸¹ *See supra* P 53.

¹⁸² Note that NO_x is a mixture of NO₂ and other oxides of nitrogen.

¹⁸³ *Id.* at 4-261. These emission sources for NO_x and/or VOCs include: mixed refrigerant compressor turbines; propane compressor turbines; thermal oxidizers; flares; diesel engines; natural gas generators; condensate tanks; condensate loading operations; diesel tanks; and fugitive emissions. Rio Grande Supplemental Information, Revision 2 of the Terminal's Prevention of Significant Deterioration Air Permit Application (PSD Air Permit Application), at 5-1 (April 3, 2017).

¹⁸⁴ PSD Air Permit Application at 5-5 to 5-89.

Rio Grande LNG Terminal would be required to employ BACT,¹⁸⁵ we see no reason to require any additional mitigation to the project to reduce VOC and NO_x emissions.

c. Direct Emissions

57. Sierra Club next argues the Final EIS understated direct emissions of certain pollutants and fails to adequately respond to Sierra Club's comments.¹⁸⁶ For example, Sierra Club claims that the Final EIS: (1) assumes that thermal oxidizers will maintain 99.9 percent destruction efficiency for volatile organic compounds, even though Rio Grande only has to prove it is meeting this rate during an initial compliance performance; (2) failed to recognize that flares emit particulate matter; and (3) failed to recognize that Rio Grande underestimates emissions from tanker loading.¹⁸⁷

58. As discussed in the Final EIS, these impacts are subject to state standards and were raised by Sierra Club in response to TCEQ's Draft Air Quality Permit for the Rio Grande LNG Terminal facility.¹⁸⁸ Although Sierra Club may disagree with TCEQ, state air quality rules govern the issuance of air permits and the applicable controls for these emission sources.¹⁸⁹ Moreover, Sierra Club cites several pages of its earlier comment but, as discussed, the Commission rejects attempts to incorporate by reference arguments from a prior pleading.¹⁹⁰ Such incorporation is improper and is grounds for dismissal.

d. Health Impacts

59. Sierra Club next argues that the Commission is mistaken in assuming that air pollution that does not violate NAAQS will not have health impacts and will therefore be insignificant. Sierra Club points to EPA's policy assessments that found adverse health

¹⁸⁵ Rio Grande submitted Revision 2 of the Terminal's PSD Air Permit Application on March 21, 2017, and the TCEQ issued an order granting the PSD permit on December 17, 2018. Final EIS at ES-12.

¹⁸⁶ Sierra Club Request for Rehearing and Stay at 29-30.

¹⁸⁷ *Id.* at 30.

¹⁸⁸ *See id.* at 30, nn.51-53, Final EIS at 4-254.

¹⁸⁹ Final EIS at 4-254.

¹⁹⁰ *See supra* P 58.

impacts associated with ozone exposure at 60 ppb, short-term NO₂ exposure at 53 ppb, and carbon monoxide emissions below the NAAQS threshold.¹⁹¹

60. The Final EIS appropriately relied on NAAQS thresholds to assess health impacts. NAAQS reflect the limits that the EPA believes are necessary to protect human health and welfare.¹⁹² In assessing cumulative air emissions during concurrent operation at the Rio Grande LNG, Texas LNG, and Annova LNG Terminals, estimated peak concentrations for criteria pollutants and averaging periods were compared to the NAAQS.¹⁹³ For all pollutants, except for 1-hour NO₂ and ozone, cumulative impacts are predicted to be below the NAAQS and, as explained, exposure near the facilities is unlikely and the pollutants would disperse before reaching nearby population centers.¹⁹⁴ Based on the project's proposed mitigation measures and adherence to air quality control and monitoring permit requirements, the Final EIS determined, and we affirm here, that the projects would not have a significant adverse impact on human health.¹⁹⁵

61. With regard to ozone, as described by EPA, people exposed to ground-level ozone close to or beyond the NAAQS threshold can experience a number of health effects such as decreased lung function and airway inflammation, with respiratory symptoms including coughing, throat irritation, chest tightness, wheezing or shortness of breath.¹⁹⁶ People with asthma are known to be especially susceptible to the effects of ozone exposure and tend to experience increased respiratory symptoms, increased medication usage, increased frequency of asthma attacks, and increased use of health care services.¹⁹⁷ Chronic Obstructive

¹⁹¹ Sierra Club Request for Rehearing and Stay at 30-31.

¹⁹² See 42 U.S.C. § 7409(b) (2018).

¹⁹³ Final EIS at 4-475.

¹⁹⁴ *Id.* The predicted peak cumulative impact for NO₂ would occur in an uninhabited area located between the fence lines of the Rio Grande LNG and Texas LNG Terminals. See *supra* P 49.

¹⁹⁵ *Id.* at ES-13.

¹⁹⁶ EPA, *Health Effects of Ozone in the General Population*, <https://www.epa.gov/ozone-pollution-and-your-patients-health/health-effects-ozone-general-population> (last visited Jan. 9, 2020).

¹⁹⁷ EPA, *Health Effects of Ozone in Patients with Asthma and Other Chronic Respiratory Disease*, <https://www.epa.gov/ozone-pollution-and-your-patients-health/health-effects-ozone-patients-asthma-and-other-chronic> (last visited Jan. 9, 2020).

Pulmonary Disease is the only other respiratory disease for which a relationship has been observed, based on a relatively few studies, between ozone and hospital admissions.¹⁹⁸

62. As discussed above, the estimated potential cumulative ozone concentration of 76.5 ppb from all three Brownsville LNG Projects could exceed the current 8-hour ozone NAAQS of 70 ppb.¹⁹⁹ For context, the exceedance would be only slightly higher than the 2008 8-hour ozone NAAQS of 75 ppb. The Final EIS observed that the nearest residential areas are approximately 2.2 miles from the site of the Rio Grande LNG Terminal.²⁰⁰ During exceedance events, people in the surrounding communities might experience the health effects of ozone exposure. In addition, people with asthma might experience exacerbated asthma symptoms. Below, we consider whether project-related ozone concentrations could result in disproportionately high and adverse health impacts for environmental justice populations.

6. Environmental Justice Impacts

63. Executive Order 12898 encourages independent agencies to identify and address, as part of their NEPA review, “disproportionately high and adverse human health or environmental effects” of their actions on minority and low-income populations.²⁰¹ The EPA recommends three steps to identify and address such effects: (1) determine the existence of minority and low-income populations, (2) determine if resource impacts are

¹⁹⁸ *Id.*

¹⁹⁹ *See supra* P 55.

²⁰⁰ EIS at 4-237.

²⁰¹ Exec. Order No. 12898, §§ 1-101, 6-604, 59 Fed. Reg. 7629, at 7629, 7632 (1994). *See Sierra Club v. FERC*, 867 F.3d at 1368 (affirming the Commission’s environmental justice analysis without determining whether “Executive Order 12,898 is binding on FERC”). Identification of a disproportionately high and adverse impact on a minority or low-income population “does not preclude a proposed agency action from going forward, nor does it necessarily compel a conclusion that a proposed action is environmentally unsatisfactory.” CEQ, *Environmental Justice: Guidance Under the National Environmental Policy Act*, at 10 (1997) (CEQ 1997 Environmental Justice Guidance), <https://www.epa.gov/environmentaljustice/ceq-environmental-justice-guidance-under-national-environmental-policy-act>; Federal Interagency Working Group for Environmental Justice and NEPA Committee, *Promising Practices for EJ Methodologies in NEPA Reviews* at 38 (2016) (quoting same), https://www.epa.gov/sites/production/files/2016-08/documents/nepa_promising_practices_document_2016.pdf.

high and adverse, and (3) determine if the impacts fall disproportionately on minority and low-income populations.²⁰²

64. The Final EIS fulfilled these steps. Commission staff concluded that within the census block groups intersected by a two-mile radius around the pipeline facilities and LNG terminal site, the minority population percentages in 24 of the 25 affected tracts exceed the EPA's categorical thresholds to be minority populations or low-income populations, or in most cases both.²⁰³

65. We note that there is no alternative to the projects that would achieve the projects' purpose and need while avoiding sites in environmental justice communities. The site of the Rio Grande LNG terminal and the other two Brownsville LNG terminals would be in an area currently zoned for commercial and industrial use along the existing, human-made Brownsville Shipping Channel.²⁰⁴ Cameron County as a whole, which includes the Brownsville Shipping Channel, has a minority population percentage and poverty rate that exceed the EPA's thresholds to be a minority population and low-income population.²⁰⁵ The other four counties crossed by the Rio Bravo Pipeline—Willacy, Kenedy, Kleberg, and Jim Wells Counties—also contain minority population percentages that exceed the EPA's categorical threshold to be minority populations.²⁰⁶ Commission staff evaluated alternatives to avoid these areas—including a no-action alternative, system alternatives, and other siting and design alternatives—but concluded that none represented a significant environmental advantage to the proposed pipeline and LNG terminal.²⁰⁷ Although the no-action alternative would avoid environmental impacts to project-affected minority and low-income

²⁰² See EPA, *Final Guidance For Incorporating Environmental Justice Concerns In EPA's NEPA Compliance Analysis*, at §§ 3.2.1-3.2.2. (1998), https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_epa0498.pdf (EPA 1998 Environmental Justice Guidance).

²⁰³ Final EIS at 4-235 to 4-236, Table 4.9.10-1. These categorical thresholds apply to an affected area if minority populations comprise over 50 percent of the population and if the poverty rate is 20 percent or greater. *Id.* at 4-234; EPA 1998 Environmental Justice Guidance at §§ 2.1.1 to 2.1.2; CEQ 1997 Environmental Justice Guidance at 25-26.

²⁰⁴ Final EIS at ES-19.

²⁰⁵ Specifically, Hispanic or Latino people make up 88.5 percent of the population and the population below the poverty threshold is 29.6 percent. *Id.* at 4-235, Table 4.9.10-1.

²⁰⁶ *Id.* at 4-235 to 4-236, Table 4.9.10-1.

²⁰⁷ *Id.* at 3-1 to 3-28.

communities, the unmet need for transportation and LNG export capacity could be developed elsewhere along the Texas Gulf Coast resulting in similar or greater impacts.²⁰⁸

66. Sierra Club contends that the EIS improperly chose Cameron County, Texas, as the comparison population for the identified minority and low-income populations rather than choosing a larger area with demographics of a more general character, such as the entire state of Texas.²⁰⁹ Sierra Club faults the EIS for making an arbitrary intent-based inquiry into disproportionate impact rather than an objective inquiry based on an appropriate comparison population.²¹⁰

67. Sierra Club emphasizes EPA's recommendation that an agency's NEPA analysis should consider how a project's impacts to resources could also impact the environmental justice communities that rely upon those resources as an economic base or a cultural value.²¹¹ Sierra Club asserts that the EIS failed to determine whether minority or low-income populations are disproportionately susceptible to, and as a result are disproportionately burdened by, the project's impacts identified in the EIS to tourism, housing, and real property.²¹²

68. Sierra Club also contends that the Commission violated NEPA by failing to take a hard look at whether the project's direct, indirect, and cumulative impacts to air quality, even if the relevant emissions would not exceed the NAAQS, would disproportionately affect environmental justice communities.²¹³

69. In the EIS, Commission staff satisfied the EPA's recommended three-step approach to identifying and addressing impacts to environmental justice populations. Because all project-affected populations meet or exceed the categorical standards to be minority or low-income populations, or both, there was no need at the first step to determine their existence using any broader "reference community."²¹⁴ A broader "comparison group" can inform the

²⁰⁸ *Id.* at ES-18.

²⁰⁹ Sierra Club Request for Rehearing and Stay at 33-34.

²¹⁰ *Id.* at 32.

²¹¹ *Id.* at 36 n.74 (citing EPA Environmental Justice Guidance at § 2.2.2).

²¹² *Id.* at 36-37.

²¹³ *Id.* at 34-35.

²¹⁴ Federal Interagency Working Group for Environmental Justice and NEPA Committee, *Promising Practices for EJ Methodologies in NEPA Reviews* at 25, 27-28 (2016) (describing the use of a "reference community"). The EIS did include the population traits of

overlapping second and third steps to detect whether a project's impacts to minority and low-income communities will be disproportionately high and adverse. Because here all project-affected populations are minority or low-income populations, or both, it is not possible that impacts will be disproportionately concentrated on minority and low-income populations versus on some other project-affected comparison group.²¹⁵ But it is possible, regardless of the uniformity, that a project's impacts to a minority or low-income population arising from some change to the environment or to the risk or rate of exposure to a pollutant would be disproportionately high and adverse if amplified by factors unique to that population like inter-related ecological, aesthetic, historical, cultural, economic, social, or health factors.²¹⁶ These factors are specific to the identified minority and low-income populations, but a relevant and appropriate comparison group can provide context for the analysis.²¹⁷ Sierra Club offers no evidence and no specific example to support its claims that the use in the EIS of Cameron County, Texas, as a comparison group "incorrectly characterized," masked," or "minimized" the impacts to minority and low-income communities.²¹⁸ To the contrary, as

Cameron County and the state of Texas for context. Final EIS at 4-234, 4-235, Table 4.9.10-1.

²¹⁵ Federal Interagency Working Group for Environmental Justice and NEPA Committee, *Promising Practices for EJ Methodologies in NEPA Reviews* at 43-44 (suggesting that agencies "consider identifying the relevant and appropriate comparison group within the affected environment" and "consider the distribution of adverse and beneficial impacts between the general population and minority populations and low-income populations in the affected environment"); EPA 1998 Environmental Justice Guidance at § 5.0 "Methods and Tools for Identifying and Assessing" ("An analysis of disproportionate impacts will develop an understanding of how the total potential impacts vary across individual communities. This allows analysts to identify and understand what portion of the total impacts may be borne by minority or low-income communities"); *accord Communities Against Runway Expansion, Inc. v. FAA*, 355 F.3d 678, 689 (D.C. Cir. 2004) (upholding agency's reasonable methodology to compare demographics of the population affected by airport expansion to the demographics of the population affected by airport noise generally, rather than a larger geographic area beyond the limits of the airport's significant noise impacts).

²¹⁶ *Id.* at 39 (suggesting that agencies recognize that even where a project's impact "appears to be identical to both the affected general population and the affected minority populations and low-income populations," the impact might be amplified by population-specific factors "e.g., unique exposure pathways, social determinants of health, community cohesion" making the impact disproportionately high and adverse).

²¹⁷ *Id.* at 40.

²¹⁸ Sierra Club Request for Rehearing and Stay at 33-34.

discussed above, Cameron County is used because that is where the LNG facility is located and the pipeline will be built, and no other alternatives would meet the projects' purpose and need.²¹⁹

70. Addressing Sierra Club's general criticism first, the EIS did not rely on an intent-based inquiry to detect disproportionately high and adverse impacts to minority and low-income populations. Given that all project-affected populations are minority or low-income populations, the EIS objectively concluded that impacts would not be disproportionate but would "apply to everyone" and would "not be focused on or targeted to any particular demographic group."²²⁰ Although the EIS could have been more precise in its language, the phrase "not be focused on" has the intransitive meaning that impacts would not be disproportionately concentrated on minority and low-income populations versus on some other project-affected comparison group. The component of intent suggested in the phrase "not be ... targeted to" does not suggest that the Commission relied on intent to detect disproportionately high and adverse impacts, but rather appropriately describes the absence of disproportionate impacts that inherently involve a component of intent. For example, the intentional exclusion of minority populations from a project's economic benefits is such an impact, and the EIS notes that contractors working on the project would be required to comply with applicable equal opportunity and non-discrimination laws and policies.

71. Turning to Sierra Club's specific challenges, Sierra Club offers no explanation how an impact identified in the EIS to tourism, housing, or real property might be disproportionately high and adverse to minority and low-income populations based on an unacknowledged sensitivity in these populations. The EIS acknowledged that tourism is an important source of employment and income for local communities in an area characterized by lower per capita income, higher poverty rates, and higher unemployment than the general population of Texas.²²¹ The EIS also concluded that the project would result in positive, permanent impacts on the local economy in the same context.²²² Sierra Club does not explain how a closer inquiry into whether minority or low-income populations rely disproportionately on tourism for employment might reveal a disproportionately high and adverse impact to these populations.

72. In the evaluation of housing, the EIS explained that the cumulative demand for housing from non-local construction workers during construction of the three Brownsville LNG projects might cumulatively result in increased rental rates and housing

²¹⁹ *Supra* P 65.

²²⁰ Final EIS at 4-237 and 4-468.

²²¹ *Id.* at 4-211, 4-213, 4-214.

²²² *Id.* at 4-213.

shortages.²²³ Sierra Club notes that changes to housing availability would primarily impact individuals looking for housing.²²⁴ But the EIS closely considered the available housing and the rental housing cost for the six project-area counties,²²⁵ which all qualify as environmental justice populations based on minority population percentages and poverty rates very similar to the narrower project-affected populations. The available housing and the rental housing cost reflect the supply and demand for housing in the county populations. Sierra Club offers no basis to conclude, and we find none, that these factors would differ for the narrower project-affected populations in a way that might result in a disproportionately high and adverse impact.

73. The EIS also appropriately addressed the potential impacts to area property values and to pipeline-crossed lands. The cumulative impact of the three Brownsville LNG projects on property values is not reasonably foreseeable and was appropriately omitted from the EIS.²²⁶ Sierra Club faults the Commission for failing to determine the demographic composition of landowners impacted by Rio Bravo's proposed pipeline. Rio Bravo's pipeline system would cross predominantly undeveloped land and no residences are closer than fifty feet from the pipeline right-of-way.²²⁷ Sierra Club offers no explanation how landowners who belong to minority or low-income populations would have a disproportionate sensitivity to an economic impact to their real property. Thus, we find no reason to revisit the conclusion in the EIS that the impacts to landowners from the pipeline system would be similar on low-income residents in the counties crossed by the project.²²⁸

74. Next, we address Sierra Club's claim that the Commission inadequately considered whether the project's air quality impacts to minority and low-income communities would be disproportionately high and adverse. The impact pathways from a project's air emissions are primarily health-based. The EPA established the NAAQS to protect human health and public welfare for all communities, including sensitive subpopulations (e.g., asthmatics,

²²³ *Id.* at 4-461 to 4-463.

²²⁴ Sierra Club Request for Rehearing and Stay at 37.

²²⁵ Final EIS at 4-224 to 4-225.

²²⁶ As noted in the EIS, the impact to a property's value is a matter of lost use of land, visibility impacts, and the public's perception of risk from one or more facilities. *Id.* at 4-232 to 4-233. Because these factors will vary widely by site and by potential buyer, the cumulative impact is not reasonably foreseeable.

²²⁷ *Id.* at 4-468.

²²⁸ *Id.*

children, and the elderly).²²⁹ As noted above, the project's direct, indirect, and cumulative impacts to air quality, with the exception of ozone-related emissions, would not increase the concentration of criteria pollutants above the NAAQS.²³⁰ Exposure to these emissions near the facilities is unlikely, and the pollutants would disperse before reaching nearby population centers.²³¹ Sierra Club offers no reason to expect that the identified environmental justice communities would be vulnerable to air quality impacts in a way that is not already accounted for in the establishment of the NAAQS thresholds. Without Sierra Club supporting its position, we will not disregard Commission staff's reasonable reliance on the NAAQS as a proxy for potential health impacts to area populations, including minority and low-income populations.

75. Because we estimate on rehearing that cumulative emissions of ozone precursors could result in ozone concentrations that would exceed the NAAQS, it is appropriate to consider whether the impact to minority and low-income populations could be disproportionately high and adverse. CEQ acknowledges that there is no standard formula for how environmental justice issues should be identified or addressed, but CEQ generally recommends that an agency consider readily available information about the potential for multiple or cumulative exposure to human health or environmental hazards in the affected population, including historical patterns of exposure.²³² CEQ and others recommend that an agency evaluate whether the impact from a significant environmental hazard to a minority or low-income population "appreciably exceeds or is likely to appreciably exceed" the impact to "the general population or other appropriate comparison group."²³³

76. Data from EPA's EJSCREEN tool indicates that in the project area the environmental justice index for ozone is equivalent to the 80th percentile in Texas (meaning that 80 percent of the populations in the state have an equal or lower environmental justice index for ozone), the 84th percentile in EPA's administrative Region 6, and the 89th percentile in the nation.²³⁴

²²⁹ *Id.* at 4-245.

²³⁰ Final EIS at 4-470 to 4-479; *see supra* P 55.

²³¹ Final EIS at 4-474 to 4-478. For example, although the predicted peak cumulative concentration of NO₂ (96 ppb) would exceed the NAAQS (100 ppb), any exceedance would occur away from residential property within the Port of Brownsville between the Rio Grande and Texas LNG terminals. Final EIS at 4-475; *see supra* P 49.

²³² CEQ 1997 Environmental Justice Guidance at 9.

²³³ *Id.* at 26; Federal Interagency Working Group for Environmental Justice and NEPA Committee, *Promising Practices for EJ Methodologies in NEPA Reviews* at 45-46.

²³⁴ EJSCREEN Report Version 2019, EJSCREEN Tool, <https://ejscreen.epa.gov/mapper/> (choose to "Select Location" using the polygon tool, next

Based on this information, we find that in the affected minority and low-income populations there is a potential for multiple or cumulative exposure to the environmental hazard of ozone and that this exposure is likely to appreciably exceed the exposure level in more general comparison groups.

77. As discussed above, the exposure to ozone during exceedance events can result in health impacts to the airways and lungs.²³⁵ People with asthma are especially susceptible, and Chronic Obstructive Pulmonary Disorder has also been linked to ozone.²³⁶ The project-affected minority populations are predominantly Hispanic or Latino with higher percentages of young children and older adults than the state population.²³⁷ EPA and Texas have published data about the prevalence of asthma separated by race. Texas has also published data about mortality from chronic lower respiratory disease separated by county. Data from the EPA for 2007 to 2010 showed that the prevalence of asthma in the United States was 7.9 percent among Hispanic children and 8.2 percent for White non-Hispanic children.²³⁸ Data from Texas for 2016 showed that the prevalence of asthma in the state was 5.1 percent among Hispanic children and 9.2 percent for White children.²³⁹ The rate of hospitalizations for asthma in Texas was 8.7 per 10,000 children for Hispanic children and 8.8 per 10,000 children for White children.²⁴⁰ The mortality rate from chronic lower respiratory disease in Cameron County, which includes the sites of the Brownsville LNG terminals

place a polygon over the footprint of the three Brownsville LNG terminals and along the shipping route, next click on the polygon and add a 2-mile buffer, then click to “Explore Reports”) (last visited Jan. 10, 2020).

²³⁵ See *supra* PP 61-62.

²³⁶ EPA, *Health Effects of Ozone in Patients with Asthma and Other Chronic Respiratory Disease*, <https://www.epa.gov/ozone-pollution-and-your-patients-health/health-effects-ozone-patients-asthma-and-other-chronic> (last visited Jan. 9, 2020).

²³⁷ Percentages of children under age five (9 percent) and adults over age 64 (17 percent) are higher than in the general state population (66th and 78th percentiles, respectively). See *supra* note 234.

²³⁸ EPA, *America’s Children and the Environment* at 218 (3rd ed. 2013), https://www.epa.gov/sites/production/files/2015-06/documents/ace3_2013.pdf. The most recent version of this report published in 2019 did not separate the asthma data by race/ethnicity.

²³⁹ Texas Department of State Health Services, *2016 Child Asthma Fact Sheet* (2016), https://dshs.state.tx.us/asthma/Documents/2016-Texas-Fact-Sheet_Child-Asthma.pdf.

²⁴⁰ *Id.* at 2.

and compressor station 3 on Rio Bravo's proposed pipeline, was 21 deaths per 100,000 people.²⁴¹ By contrast the mortality rate from chronic lower respiratory disease was 27 in the state's Public Health Region 11²⁴² and was 41.4 in the entire state.²⁴³ This information does not show that the anticipated exposure to ozone in minority and low-income communities would result in a disproportionately high and adverse impact to these communities.²⁴⁴

7. Mitigation Measures

78. Sierra Club argues that the Commission violated NEPA by issuing the Final EIS without all mitigation plans complete.²⁴⁵ Sierra Club asserts that the failure to develop these plans deprived the public of the opportunity to comment and claims that the EIS and

²⁴¹ Texas Department of State Health Services, *Health Facts Profiles*, http://healthdata.dshs.texas.gov/HealthFactsProfiles_14_15 (select "By County", Year 2015, Cameron County).

²⁴² Public Health Region 11 includes Cameron County and several other counties in southern Texas. The aggregate population in 2015 was about 83 percent Hispanic and about 28.3 percent people living below the poverty threshold, very similar to the communities closest to the three Brownsville LNG projects. The mortality rate in Public Health Region 11 from chronic lower respiratory disease of 27 deaths per 100,000 people was the lowest of any Public Health Region in the state.

²⁴³ Texas Department of State Health Services, *Health Facts Profiles*, http://healthdata.dshs.texas.gov/HealthFactsProfiles_14_15 (select "Texas Only").

²⁴⁴ The dissent argues that is unclear how the Commission reaches this conclusion, but this critique misunderstands the standard for disproportionately high and adverse impacts. As discussed, Hispanic and Latino populations are not more susceptible than the general population to asthma, and this area of Texas, which is predominantly Hispanic and Latino, is not more susceptible to chronic lower respiratory disease such that health impacts will be disproportionately high and adverse.

²⁴⁵ Sierra Club Request for Rehearing and Stay at 38. Sierra Club lists the following plans that must be finalized before construction: Dredged material management plan; spill prevention, control, and countermeasures plan; stormwater pollution prevention plan; nighttime lighting plan, migratory bird conservation plan; and emergency response plans. *Id.*

November 22 Order provided no basis to determine that the pending mitigation plans would be feasible or effective.²⁴⁶

79. The inclusion in the November 22 Order of environmental conditions that require Rio Grande and Rio Bravo to file mitigation plans does not violate NEPA. NEPA “does not require a complete plan be actually formulated at the onset, but only that the proper procedures be followed for ensuring that the environmental consequences have been fairly evaluated.”²⁴⁷ Here, Commission staff published a Final EIS that identified baseline conditions for all relevant resources. Later-filed mitigation plans will not present new environmentally-significant information nor pose substantial changes to the proposed action that would otherwise require a supplemental EIS. As we have explained, practicalities require the issuance of orders before completion of certain reports and studies because large projects, such as this, take considerable time and effort to develop.²⁴⁸ Moreover, in the case of pipelines, their development is subject to many variables whose outcomes cannot be predetermined and, in some instances, the pipeline company may be unable to access property in order to acquire the necessary information until it has obtained a certificate and with it the power of eminent domain.²⁴⁹ Accordingly, post-certification studies may properly be used to develop site-specific mitigation measures. It was not unreasonable for the Final EIS to deal with sensitive locations in a general way, leaving specificities of certain resources for later exploration during construction.²⁵⁰ What is important is that the agency make adequate provisions to assure that the certificate holder will undertake and identify appropriate mitigation measures to address impacts that are identified during construction.²⁵¹ The Commission has and will continue to demonstrate our commitment to assuring adequate mitigation.²⁵²

80. Sierra Club also argues that emergency response mitigation is inadequate, stating that it is unclear if Rio Grande has begun coordinating evacuation procedures with local

²⁴⁶ *Id.*

²⁴⁷ *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989).

²⁴⁸ See, e.g., *Algonquin Gas Transmission, LLC*, 154 FERC ¶ 61,048 at P 94; *East Tennessee Natural Gas Co.*, 102 FERC ¶ 61,225 at P 23, *aff'd sub nom. Nat'l Comm. for the New River, Inc. v. FERC*, 373 F.3d 1323 (2004).

²⁴⁹ *Midwestern Gas Transmission Co.*, 116 FERC ¶ 61,182, at P 92 (2006).

²⁵⁰ *Mojave Pipeline Co.*, 45 FERC ¶ 63,005, at 65,018 (1988).

²⁵¹ *Id.*

²⁵² *Id.*

emergency planning groups, fire departments, and local law enforcement as part of the Emergency Response Plan (ERP), as required by the November 22 Order.²⁵³ Sierra Club argues that if the City of South Padre Island has a serious concern with the plan or a related Cost-Sharing Plan, it is unclear how the City could act on these concerns or how the project could proceed if its concerns are not resolved.²⁵⁴

81. As discussed, for purposes of NEPA, our authorization can be conditioned on the development of mitigation plans. Accordingly, Sierra Club's concerns are compliance related. We note that on November 25, 2019, pursuant to Environmental Conditions 53 and 54 of the November 22 Order, Rio Grande submitted its proposed ERP and Cost-Sharing Plan as part of its Implementation Plan.²⁵⁵ The Commission is currently reviewing the plans. As part of that review process, on January 8, 2020, staff requested additional information from Rio Grande regarding the extent to which coordination with the City of South Padre Island has occurred for consultation on the Emergency Response Plan and the Cost Sharing Plan.²⁵⁶ We note that, under the conditions in the November 22 Order, initial site preparation will not begin before we approve the plans and that the plans must be updated on a regular basis.²⁵⁷

82. Sierra Club next argues that the Final EIS relied on Corps mitigation for wetlands to reduce impacts below significant levels, but details of Rio Grande's amended compensatory mitigation plan are still being reviewed by the Corps. Sierra Club claims that the Final EIS omits any discussion of mitigation location, types, methods, timing or ratios, and this information should be subject to comment by the public.²⁵⁸

83. The Final EIS explained that Rio Grande is developing mitigation to comply with Corps mitigation requirements under section 404 of the CWA, including a Conceptual Mitigation Plan, which identifies the potential to acquire and preserve wetlands in a portion

²⁵³ *Id.*

²⁵⁴ *Id.*

²⁵⁵ See Implementation Plan at Vol. 2-12 & Vol. 2-15 (Nov. 25, 2019) (privileged).

²⁵⁶ Memorandum on Comments on Emergency Response Plan and Cost Sharing Plan at 3 (January 8, 2020) (asking whether coordination with Port Isabel and the City of South Padre Island has occurred for consultation on the Emergency Response Plan and the Cost Sharing Plan because LNG Carriers would be routed near these areas and documentation confirming coordination with each area should be provided).

²⁵⁷ November 22 Order, 169 FERC ¶ 61,131 at Environmental Conditions 53-54.

²⁵⁸ Sierra Club Request for Rehearing and Stay at 38.

of the Loma Ecological Preserve and to transfer the land to a land manager, such as the FWS.²⁵⁹ Again, detailed mitigation measures do not need to be finalized in an EIS for purposes of NEPA, particularly when the EIS has disclosed the project's anticipated wetlands impacts, including wetlands loss,²⁶⁰ and mitigation, including the compensatory mitigation implemented under CWA section 404. Although Sierra Club claims that the Commission is "passing the buck" on wetlands mitigation, an agency may rely on another agency that has jurisdiction over the area in question to implement appropriate mitigation.²⁶¹ Nonetheless, in compliance with Environmental Condition 10 of the Certificate Order, construction of the LNG Terminal would not start until Rio Grande's wetland mitigation plans are finalized and the Corps has issued its CWA 404 permits.²⁶²

8. Fish and Wildlife Service's Biological Opinion

84. Sierra Club claims that FWS's October 2, 2019 Biological Opinion is flawed because it fails to: (1) define the conservation measures that it relies on; and (2) set a clear limit on the amount of authorized take.²⁶³ Accordingly, Sierra Club argues, the Biological Opinion violates the ESA. In addition, by relying on FWS's purportedly flawed Biological Opinion, Sierra Club contends that the Commission likewise violated the ESA.

85. As explained in the November 22 Order, FWS filed a Final Biological Opinion on October 2, 2019, concluding that the project is not likely to jeopardize the continued existence of the ocelot and jaguarundi. The Biological Opinion included an incidental take statement, which anticipates the incidental take of one endangered cat (ocelot or jaguarundi) for construction and the life of the project (i.e., 30 years).²⁶⁴ In order to minimize the impact of incidental take on the ocelot and jaguarundi, the Biological Opinion included four reasonable and prudent measures requiring Rio Grande and Rio Bravo to:

²⁵⁹ Final EIS at ES-6.

²⁶⁰ The Final EIS disclosed the wetland impacts associated with the Rio Grande LNG Terminal, explaining that project construction would affect a total of 327.7 acres of wetlands, of which 182.4 acres would be permanently converted to industrial land or open water within the footprint of the LNG Terminal, 107.3 acres would be maintained in an herbaceous wetland state within the permanent right-of-way for the pipelines, and the remaining 38.0 acres would be allowed to revert to pre-construction conditions. *Id.*

²⁶¹ See *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 353 (1989).

²⁶² November 22 Order, 169 FERC ¶ 61,131 at Environmental Condition 10.

²⁶³ Sierra Club Request for Rehearing and Stay at 40-43.

²⁶⁴ Biological Opinion at 1, 33.

(1) implement the voluntary conservation measures proposed in their biological opinion;²⁶⁵ (2) notify FWS of any unauthorized take or if any endangered cat is found dead or injured during project implementation; (3) provide information and training on ocelot habitat requirements and avoidance measures to all project employees and contractors; and (4) monitor take of the ocelot and jaguarundi and provide periodic monitoring reports to FWS.²⁶⁶ Finally, the Biological Opinion also prescribed six mandatory terms and conditions, which implement the reasonable and prudent measures described above and outline the applicants' reporting and monitoring requirements.²⁶⁷ The November 22 Order adopted the measures required by FWS in the Biological Opinion.²⁶⁸

86. Sierra Club discounts the substantive and procedural responsibilities that section 7(a)(2) of the ESA²⁶⁹ imposes and the interdependence of federal agencies acting under that section. Although a federal agency is required to ensure that its action will not jeopardize the continued existence of listed species or adversely modify their critical habitat, it must do so in consultation with the appropriate agency; in this case, FWS. Because FWS is charged with implementing the ESA, it is the recognized expert regarding matters of listed species and their habitats, and the Commission may rely on its conclusions.²⁷⁰

87. In reviewing whether the Commission may appropriately rely on the Biological Opinion, the relevant inquiry is not whether the document is flawed, but rather whether the Commission's reliance was arbitrary and capricious.²⁷¹ Therefore, an agency may rely on a Biological Opinion if a challenging party fails to cite new information that the consulting agency did not take into account that challenges the Opinion's conclusions. Here, the alleged defects that Sierra Club identifies do not rise to the level of new information that would cause the Commission to call into question the factual conclusions of FWS's

²⁶⁵ See *id.* at 4-5 (describing the voluntary conservation and mitigation measures proposed by Rio Grande and Rio Bravo).

²⁶⁶ *Id.* at 34-35.

²⁶⁷ *Id.* at 35-36.

²⁶⁸ November 22 Order, 169 FERC ¶ 61,131 at P 91.

²⁶⁹ 16 U.S.C. § 1536(a)(2) (2018).

²⁷⁰ *City of Tacoma v. FERC*, 460 F.3d 53, 75 (D.C. Cir. 2006) (finding that expert agencies such as FWS have greater knowledge about the conditions that may threaten listed species and are best able to make factual determinations about appropriate measures to protect the species).

²⁷¹ *Id.*

Biological Opinion. Thus, it is appropriate for the Commission to rely on the judgment of FWS, the agency that Congress has determined in the ESA should be responsible for providing its expert opinion regarding whether authorizing the project is likely to jeopardize the continued existence of the ocelot or jaguarundi.

88. Sierra Club also claims that the Commission's reliance on the Biological Opinion is unlawful because the November 22 Order did not explicitly mandate compliance with the conservation measures identified in the Biological Opinion.²⁷² Specifically, Sierra Club states that the Commission's order did not incorporate into the project design or otherwise require Rio Grande and Rio Bravo to implement what the Biological Opinion characterizes as "Voluntary Conservation Measures,"²⁷³ including acquiring off-site ocelot and jaguarundi habitat and realigning the pipeline to avoid ocelot and jaguarundi habitat.

89. The November 22 Order conditioned the project authorization on Rio Grande's and Rio Bravo's implementation of the mandatory measures contained in FWS's Biological Opinion.²⁷⁴ FWS's Biological Opinion is a binding federal authorization, and where Biological Opinions contain reasonable and prudent alternatives or incidental take conditions we expect holders of NGA authorizations and certificates to implement those conditions. Accordingly, we reaffirm that Rio Grande and Rio Bravo are required to adhere to the incidental take statement, which includes implementing the reasonable and prudent measures and adopting all terms and conditions as represented in the FWS's Biological Opinion.

9. Ballast Water Impacts

90. Sierra Club argues that the Commission failed to adequately consider the impact that the unloading of ballast water by maritime vessels taking on LNG at the terminal may have by introducing foreign invasive species.²⁷⁵ Sierra Club objects to the conclusion in the Final EIS that each vessel discharging ballast water at the project will only represent

²⁷² Sierra Club Request for Rehearing and Stay at 43-44.

²⁷³ Biological Opinion at 4-5 (describing the applicant-proposed "Voluntary Conservation Measures"). Despite use of the term "Voluntary Conservation Measures," we note that the Biological Opinion's first reasonable and prudent measure requires Rio Grande and Rio Bravo "to fully implement the Voluntary Conservation Measures." *See id.* at 34.

²⁷⁴ November 22 Order, 169 FERC ¶ 61,131 at P 91 ("With imposition of the conditions required herein, *which include all measures required by FWS in its Biological Opinion*, we find construction and operation of the projects as approved will be an environmentally acceptable action and not inconsistent with the public interest.") (emphasis added).

²⁷⁵ Sierra Club Request for Rehearing and Stay at 44.

0.1 percent of the approximately 25 billion gallons of water in the Brownsville Shipping Channel and will be subject to Coast Guard regulations to prevent the introduction of exotic species.²⁷⁶ Sierra Club argues that ballast water would not be promptly mixed into the entire volume of the shipping channel but would accumulate near the terminal. Even a small amount of ballast water could introduce invasive species, such as lionfish and tiger shrimp, that prey on and transmit disease to native fish and shrimp populations.²⁷⁷ Sierra Club thus claims that, combined with stress from ongoing industrial activities in the channel, invasive species will have more than the negligible impact found by the Final EIS, thereby increasing the prediction that the project will have a moderate harm on fisheries and tourism.²⁷⁸

91. While docked, ballast water would be offloaded into the Brownsville Shipping Channel as the ship takes on LNG. To reduce the potential for the introduction of invasive species and other foreign organisms, the Coast Guard requires that ballast water be completely exchanged in the open ocean at least 200 miles from U.S. waters.²⁷⁹ This exchange is reported to reduce aquatic organisms by 88 to 99 percent.²⁸⁰ Alternatively, a vessel may reduce organisms using an on-board ballast water treatment process.²⁸¹ The EIS acknowledged that although these measures may not eliminate all risks, they would minimize the risk of introducing invasive species into the project area,²⁸² particularly when project-related vessels would only represent a small fraction of the overall Brownsville Shipping Channel traffic. Having evaluated the possible environmental impacts of ballast water discharge into the Brownsville Shipping Channel, the Commission sees no reason to require more stringent conditions than those required by the Coast Guard, which is the agency responsible for establishing standards for the discharge of ballast water to protect against invasive species.²⁸³

²⁷⁶ *Id.* (citing EIS at 4-113).

²⁷⁷ *Id.* at 45.

²⁷⁸ *Id.*

²⁷⁹ Final EIS at 4-42 to 4-43.

²⁸⁰ *Id.* at 4-113.

²⁸¹ *Id.* at 4-43.

²⁸² *Id.* at 4-113.

²⁸³ Final EIS at 4-43.

10. Sea Turtle Impacts

92. Sierra Club states that although the Final EIS and the November 22 Order acknowledged that moderate cumulative impacts are anticipated for sea turtles due to dredging, vessel traffic, and pile-driving,²⁸⁴ the Final EIS failed to discuss additional mitigation methods or acknowledge what impacts will not be mitigated. Sierra Club objects to required mitigation, the National Marine Fisheries Service *Vessel Strike Avoidance Measures and Reporting for Mariners*, as insufficient for impacts from vessel traffic. According to Sierra Club, the measures recommend that vessels should reduce speed to 10 knots or less when cetaceans are observed, but the Final EIS acknowledges that sea turtles cannot actively avoid collisions with vessels traveling faster than 2.2 knots.²⁸⁵ Sierra Club states that the Commission should have examined establishing a mandatory ship speed near the mouth of the Brownsville Shipping Channel and points to a December 20, 2019 personal communication with Lela Burnell Korab stating that some large vessels in the channel do not obey existing maritime speed limits.²⁸⁶

93. The Commission has no jurisdiction over the speed for any vessels at the mouth of the Brownsville Shipping Channel.²⁸⁷ Nevertheless, the Commission fully considered impacts to and mitigation of vessel speed impacts to sea turtles. The Final EIS explained that sea turtles are rare visitors to the immediate project area and are more likely to be encountered along the LNG carrier transit routes in the Gulf of Mexico and nearshore waters,²⁸⁸ but further assessed the potential for LNG vessels calling at the proposed project to result in collisions with sea turtles.²⁸⁹ The Final EIS explained that Rio Grande is asking its carriers to comply with the *Vessel Strike Avoidance Measures and Reporting for Mariners*. The measures require more than reduced speeds and directs vessels, when sea turtles or small cetaceans are sighted, to attempt to maintain a distance of 50 yards or greater between the animal and the vessel whenever possible, and a distance of 100 yards or greater when groups of cetaceans

²⁸⁴ Sierra Club Request for Rehearing and Stay at 45-46 (citing November 22 Order, 169 FERC ¶ 61,131 at P 118 (citing EIS at 4-451)).

²⁸⁵ *Id.* at 46 (citing EIS at 4-136).

²⁸⁶ *Id.*

²⁸⁷ Final EIS at Vol. 3, Pt. 3, 114.

²⁸⁸ *Id.* at 4-136.

²⁸⁹ *Id.* at 4-136 to 4-137.

are sighted.²⁹⁰ We find the measures described above adequate to address the risks to sea turtles from vessel traffic.

94. As for Sierra Club's claim that existing vessels are exceeding speed restrictions, this is new information collected by Sierra Club on December 20, 2019 and provided to the Commission for the first time on rehearing. Parties are not permitted to introduce new evidence for the first time on rehearing since such a practice would allow an impermissible moving target and would frustrate needed administrative finality.²⁹¹ Sierra Club had ample opportunity to collect and raise this new evidence during the proceeding. In light of its failure to do so, we dismiss its request as to this specific issue.

95. Sierra Club also claims that noise mitigation for pile driving and construction of the project facility is inconsistent with the nearby Annova LNG project, which, unlike this project, originally did not allow pile driving to begin during nighttime hours.²⁹² Each LNG terminal is unique in design and in resource impacts. Rio Grande modified its original construction plans to minimize the need for in-water pile-driving.²⁹³ Rio Grande has stated that it would also reduce impacts on sea turtles from in-water activities by employing a dedicated biologist with stop-work authority that would monitor for species presence prior to pile-driving activities and during pile-driving and dredging activities, which would include maintenance dredging during operations.²⁹⁴ The Commission is satisfied that Rio Grande's measures are adequate.

²⁹⁰ NOAA Fisheries, NMFS Southeast Region Vessel Strike Avoidance Measures and Reporting for Mariners; revised February 2008, <https://www.fisheries.noaa.gov/southeast/consultations/regulations-policies-and-guidance>.

²⁹¹ *PaTu Wind Farm, LLC v. Portland General Electric Company, LLC*, 151 FERC ¶ 61,223, at P 42 (2015). *See also Potomac-Appalachian Transmission Highline, L.L.C.*, 133 FERC ¶ 61,152, at P 15 (2010).

²⁹² Sierra Club Request for Rehearing and Stay at 46.

²⁹³ Final EIS at 4-137.

²⁹⁴ *Id.* at 4-140.

11. Greenhouse Gas Emissions

a. Global Warming Potentials

96. Sierra Club contends that the Commission failed to adequately consider the project's greenhouse gas impacts,²⁹⁵ alleging that the Commission relied on outdated global warming potentials for GHGs when it analyzed the projects' GHG emissions using the EPA's international GHG reporting rules rather than current science.²⁹⁶

97. The Commission appropriately relied on EPA's published global warming potentials,²⁹⁷ which are the current scientific methodology used for consistency and comparability with other Commission jurisdictional projects as well as emissions estimates in the United States and internationally, including greenhouse gas control programs under the CAA. This frame of reference would be lost if other values were used.²⁹⁸

98. Sierra Club cites *Western Organization of Resource Councils v. Bureau of Land Management*²⁹⁹ for the proposition that an agency violates NEPA when it exclusively relies on outdated science regarding global warming potentials in an EIS. But in that case, the district court ruled that the agency failed to justify using a global warming potential with a longer time horizon to assess methane emissions when it had that time horizon in another

²⁹⁵ Mr. Young argues that the Commission is required to quantify emissions from the Rio Grande LNG Terminal. John Young Request for Rehearing at 7. The Commission provided this analysis. See November 22 Order, 169 FERC ¶ 61,131 at P 108 (citing EIS at 4-248 to 4-254). Mr. Young also asked about the status of EPA's previous endangerment finding for GHGs under the CAA, and presumably what that means for GHG regulation under the CAA, which is outside the scope of this proceeding. John Young Request for Rehearing at 7.

²⁹⁶ Sierra Club Request for Rehearing and Stay at 47.

²⁹⁷ Final EIS at 4-245.

²⁹⁸ *Dominion Transmission, Inc.*, 158 FERC ¶ 61,029, at P 4 (2017).

²⁹⁹ No. CV 16-21-GF-BMM, 2018 WL 1475470, at *15 (D. Mont. Mar. 26, 2018), *reconsideration denied*, No. CV 16-21-GF-BMM, 2018 WL 9986684 (D. Mont. July 31, 2018), and *appeal dismissed*, No. 18-35836, 2019 WL 141346 (9th Cir. Jan. 2, 2019).

EIS.³⁰⁰ In contrast, as we have explained,³⁰¹ we have consistently used EPA's global warming potentials, including time horizons, in order to compare proposals with other projects and with GHG inventories.³⁰²

99. In any event, while Sierra Club faults the Commission's reliance on EPA's published guidance, Sierra Club does not offer an alternative in its rehearing request.³⁰³ Sierra Club cites to an earlier comment, but such incorporation by reference is improper and is an alternative basis for dismissing Sierra Club's argument.³⁰⁴

b. Significance of the Projects' Greenhouse Gas Emissions under NEPA

100. Sierra Club argues that the Commission could have determined whether the projects' GHG emissions were significant by using the GHG emission reduction goals in the Paris Climate Accord, which were still in effect when the EIS and November 22 Order were issued.³⁰⁵ Even if the Commission chose not to use the Paris Climate Accord emissions reduction targets, Sierra Club claims that other methodologies could be used to ascribe

³⁰⁰ *Id.*

³⁰¹ *Dominion Transmission, Inc.*, 158 FERC ¶ 61,029 at P 4.

³⁰² *Supra* P 97.

³⁰³ Sierra Club Request for Rehearing and Stay at 47.

³⁰⁴ *San Diego Gas and Electric Co. v. Sellers of Market Energy*, 127 FERC ¶ 61,269, at P 295 (2009). *See Tennessee Gas Pipeline Co., L.L.C.*, 156 FERC ¶ 61,007 (2016) ("the Commission's regulations require rehearing requests to provide the basis, in fact and law, for each alleged error including representative Commission and court precedent. Bootstrapping of arguments is not permitted."); *see also ISO New England, Inc.*, 157 FERC ¶ 61,060 (2016) (explaining that the identical provision governing requests for rehearing under the Federal Power Act "requires an application for rehearing to 'set forth specifically the ground or grounds upon which such application is based,' and the Commission has rejected attempts to incorporate by reference grounds for rehearing from prior pleadings"); *Alcoa Power Generating, Inc.*, 144 FERC ¶ 61,218, at P 10 (2013) ("The Commission, however, expects all grounds to be set forth in the rehearing request, and will dismiss any ground only incorporated by reference.") (citations omitted).

³⁰⁵ Sierra Club Request for Rehearing and Stay at 47-48.

significance, including tools used by the U.S. Global Change Research Program (USGCRP) to assess impacts or the Social Cost of Carbon tool.³⁰⁶

101. Sierra Club's suggested methodologies would not help the Commission determine whether the projects' GHG emissions are significant. As discussed in the November 22 Order, the Commission does not see the utility in using the targets in the Paris Climate Accord, because the United States had announced its intent to withdraw from the accord at the time the Commission issued the November 22 Order.³⁰⁷ But, even if the Commission were to consider those targets, without additional guidance, the Commission cannot determine the significance of the project's emissions in relations to the goals. For example, there are no industry sector or regional emission targets or budgets with which to compare project emissions, or established GHG offsets to assess the projects' relationship with emissions targets.

102. Similarly, the dissent argues that NEPA requires that the Commission determine whether GHG emissions will have a significant effect on climate change and that the Commission could make that determination using the Social Cost of Carbon or its own expertise as the Commission does for other aspects of its environmental review, including wetlands.

103. We disagree. The Social Cost of Carbon is not a suitable method for determining whether GHG emissions that are caused by a proposed project will have a significant effect on climate change and the Commission has no authority or objective basis using its own expertise to make such determination.

104. The Commission has provided extensive discussion on why the Social Cost of Carbon is not appropriate in project-level NEPA review and cannot meaningfully inform the Commission's decisions on natural gas infrastructure projects under the NGA.³⁰⁸ It is not appropriate for use in any project-level NEPA review for the following reasons:

³⁰⁶ *Id.* at 48.

³⁰⁷ See November 22 Order, 169 FERC ¶ 61,131 at P 108 & n.253. On November 4, 2019, President Trump began the formal process of withdrawing from the Paris Climate Accord by notifying the United Nations Secretary General of his intent to withdraw the United States from the Paris Climate Accord, which takes 12 months to take effect.

³⁰⁸ *Mountain Valley*, 161 FERC ¶ 61,043 at P 296, *order on reh'g*, 163 FERC ¶ 61,197 at PP 275-297, *aff'd*, *Appalachian Voices v. FERC*, No. 17-1271, 2019 WL 847199, at *2 ("[The Commission] gave several reasons why it believed petitioners' preferred metric, the Social Cost of Carbon tool, is not an appropriate measure of project-level climate change impacts and their significance under NEPA or the Natural Gas Act. That is all that is required for NEPA purposes."); see also *EarthReports, Inc. v. FERC*, 828 F.3d 949, 956

(1) EPA states that “no consensus exists on the appropriate [discount] rate to use for analyses spanning multiple generations”³⁰⁹ and consequently, significant variation in output can result;³¹⁰

(2) the tool does not measure the actual incremental impacts of a project on the environment; and

(3) there are no established criteria identifying the monetized values that are to be considered significant for NEPA reviews.³¹¹

Sierra Club claims that the Commission has never offered a rational explanation for why the Social Cost of Carbon tool is appropriate for other agencies. Sierra Club is incorrect. We have repeatedly explained that while the methodology may be useful for other agencies’ rulemakings or comparing regulatory alternatives using cost-benefit analyses where the same discount rate is consistently applied, it is not appropriate for estimating a specific project’s impacts or informing our analysis under NEPA.³¹² Moreover, Executive Order 13783,

(D.C. Cir. 2016); *Sierra Club v. FERC*, 672 F. App’x 38, (D.C. Cir. 2016); *see also Citizens for a Healthy Cmty. v. U.S. Bureau of Land Mgmt.*, 377 F. Supp. 3d 1223, 1239-41 (D. Colo. 2019) (upholding the agency’s decision to not use the Social Cost of Carbon); *WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41, 77-79 (D.D.C. 2019) (upholding the agency’s decision to not use the Social Cost of Carbon); *High Country Conservation Advocates v. U.S. Forest Serv.*, 333 F. Supp. 3d 1107, 1132 (D. Colo. 2018) (“[T]he *High Country* decision did not mandate that the Agencies apply the social cost of carbon protocol in their decisions; the court merely found arbitrary the Agencies’ failure to do so without explanation.”).

³⁰⁹ See EPA, Fact Sheet: *Social Cost of Carbon* (November 2013), https://19january2017snapshot.epa.gov/climatechange/social-cost-carbon_.html.

³¹⁰ Depending on the selected discount rate, the tool can project widely different present day cost to avoid future climate change impacts.

³¹¹ See generally *Adelphia Gateway, LLC.*, 169 FERC ¶ 61,220 (McNamee, Comm’r, concurrence) (“When the Social Cost of Carbon estimates that one metric ton of CO₂ costs \$12 (the 2020 cost for a discount rate of 5 percent), agency decision-makers and the public have no objective basis or benchmark to determine whether the cost is significant. Bare numbers standing alone simply *cannot* ascribe significance.”) (emphasis in original) (footnote omitted). Neither Sierra Club nor the dissent has specifically explained how to ascribe significance to calculated Social Cost of Carbon numbers.

³¹² *Mountain Valley*, 161 FERC ¶ 61,043 at P 296.

Promoting Energy Independence and Economic Growth, has disbanded the Interagency Working Group on Social Cost of Greenhouse Gases and directed the withdrawal of all technical support documents and instructions regarding the methodology, stating that the documents are “no longer representative of governmental policy.”³¹³

105. Sierra Club also asks that the Commission consider using “tools used by the [USGCRP]” to assess different emission scenarios and consequently the incremental impact of the GHG emissions at issue in these projects.³¹⁴ Sierra Club itself acknowledges that such analysis of discrete physical impacts may be impossible,³¹⁵ but, in any event, such a vague request to use USGCRP tools without identifying a particular tool or further elaboration of the applicability or utility of such tools does not alert the Commission to what Sierra Club is asking us to reconsider on rehearing.³¹⁶ Sierra Club cites to earlier comments, but it is unclear what climate model it would like the Commission to use and, again, such incorporation by reference is improper and therefore an alternative basis for dismissing its request.³¹⁷

106. We also disagree with the dissent’s argument that the Commission can establish its own methodology for determining significance, pointing out that the Commission has determined the significance of effects on other environmental resources, such as wetlands, using its own expertise and without generally accepted significance criteria or a standard methodology. As an initial matter, it is important to note that when the Commission states it has no suitable methodology for determining the significance of GHG emissions, the Commission means that it has no objective basis for making such finding.

107. In contrast to the Commission’s analysis of a project’s impact on climate change, the Commission’s findings regarding significance for vegetation, wildlife, and wetlands have an objective basis. For example, for wetlands, the Commission examined wetlands impacts by quantifying the acreage and types of wetlands using the applicants wetland delineation performed in accordance with the Corps’ Wetlands Delineation Manual and the Atlantic and Gulf Coastal Plain regional supplement, aerial imagery, field delineation data from adjacent

³¹³ Exec. Order No. 13,783, 82 Fed. Reg. 16093 (2017).

³¹⁴ Sierra Club Request for Rehearing and Stay at 48.

³¹⁵ *Id.*

³¹⁶ The NGA requires that issues be specifically raised on rehearing. 15 U.S.C. § 717r(a). We also note that Sierra Club omitted this request in its statement of issues in violation of Rule 713 of the Commission’s Rules of Practices and Procedure. 18 C.F.R. § 385.713. *See also supra* P 8.

³¹⁷ *See supra* P 99.

parcels, and other available geographic information systems.³¹⁸ The Commission determined the project's effect on vegetation by using the applicant's materials to quantify the amount of acres that will be temporarily impacted by construction and permanently impacted by operation, and by considering the construction avoidance, mitigation, and restoration activities that Rio Grande and Rio Bravo committed to in its application.³¹⁹ Based on this information, the Commission made a reasoned finding that the project impacts on wildlife will not be significant. The Commission conducted a similar evaluation for wildlife and aquatic resources.³²⁰

108. Whereas here, the Commission has no reasoned basis to determine whether a project has a significant effect on climate change. To assess a project's effect on climate change, the Commission can only quantify the amount of project emissions. That calculated number cannot inform the Commission on climate change effects caused by the project, e.g., increase of sea level rise, effect on weather patterns, or effect on ocean acidification. Nor are there acceptable scientific models that the Commission may use to attribute every ton of GHG emissions to a physical climate change effect. Without adequate support or a reasoned target, the Commission cannot ascribe significance to particular amounts of GHG emissions. Courts require agencies to "consider[] the relevant factors and articulate[] a rational connection between the facts found and the choice made."³²¹ Simply put, stating that an amount of GHG emissions appears significant without any objective support fails to meet the agency's obligations under the Administrative Procedure Act.

c. Consideration of Greenhouse Gas Emissions

109. Sierra Club argues that the Commission failed to consider greenhouse gas emissions as part of its public interest determination in violation of *Sierra Club v. FERC*.³²² Sierra

³¹⁸ See Final EIS at ES-6, 4-55 to 4-67.

³¹⁹ *Id.* at 4-69 to 4-84.

³²⁰ *Id.* at 4-84 to 4-120.

³²¹ *City of Tacoma v. FERC*, 460 F.3d 53, 76 (D.C. Cir. 2006) (quoting *Ariz. Cattle Growers' Ass'n v. FWS*, 273 F.3d 1229, 1235-36 (9th Cir. 2001)); see also *American Rivers v. FERC*, 895 F.3d 32, 51 (D.C. Cir. 2018) ("... the Commission's NEPA analysis was woefully light on reliable data and reasoned analysis and heavy on unsubstantiated inferences and *non sequiturs*") (italics in original); *Found. for N. Am. Wild Sheep v. U.S. Dep't of Agr.*, 681 F.2d 1172, 1179 (9th Cir. 1982) ("The EA provides no foundation for the inference that a valid comparison may be drawn between the sheep's reaction to hikers and their reaction to large, noisy ten-wheel ore trucks.").

³²² 867 F.3d 1357, 1373 (D.C. Cir. 2017).

Club states that the Commission's failure to consider the significance of greenhouse gas emissions "preempts" its ability to assess whether the project is in the public interest.³²³ Similarly, the dissent argues that because the Commission does not determine whether GHG emissions are "significant," the Commission's consideration of climate change "does not play a meaningful role in the Commission's public interest determination," and therefore, the dissent concludes that the Commission's public interest determination "systematically excludes the most important environmental consideration of our time" and is "contrary to law, arbitrary and capricious, and the not the product of reasoned decision making."

110. Sierra Club is mistaken. The Commission approved the projects under NGA sections 3 and 7 based on the record, which includes the GHG emissions analysis. The Final EIS discusses the GHG emissions from construction and operation of the projects,³²⁴ the climate change impacts in the region,³²⁵ and the regulatory structure for GHGs under the CAA.³²⁶ Although the Commission is unable to ascribe significance to GHG emissions based on the lack of current science or standards, contrary to Sierra Club's claim, the Commission stated in the November 22 Order that it agreed with all the conclusions presented in the Final EIS and found that the projects, if constructed and operated as described in the Final EIS, are environmentally acceptable actions.³²⁷

111. Further, we disagree with the dissent that the Commission must determine whether GHG emissions are "significant" in order to determine whether the construction, operation, and siting of a NGA section 3 facility is inconsistent with the public interest. As we explained above, the Commission has no objective basis to determine whether a project has a significant effect on climate change and the dissent cites to none; however, the Commission clearly identifies that the benefits of the project show that the project is not inconsistent with the public interest and Congress has deemed export of natural gas to FTA countries to be in the public interest.

³²³ Sierra Club Request for Rehearing and Stay at 49.

³²⁴ Final EIS at 4-256 to 4-271 (LNG Terminal including Compressor Station 3) and 4-271 to 4-288 (pipeline facilities).

³²⁵ *Id.* at 4-480 to 4-481.

³²⁶ *Id.* at 4-248 to 4-254.

³²⁷ November 22, 2019 Order, 169 FERC ¶ 61,131 at P 133.

d. **Mitigation of GHG emissions**

112. The dissent contends that the Commission could mitigate any GHG emissions in the event that it made a finding that the GHG emissions had a significant impact on climate change and that NEPA requires a discussion of mitigation measures.

113. Even if the Commission were able to make a finding regarding the significance of GHG emissions, we do not believe it would be reasonable for the Commission to unilaterally establish measures to mitigate GHG emissions. Congress, through the CAA, assigned the EPA and the States authority to establish such measures. Congress designated the EPA as the expert agency “best suited to serve as primary regulator of greenhouse gas emissions,”³²⁸ not the Commission.

114. The CAA establishes an all-encompassing regulatory program, supervised by the EPA to deal comprehensively with interstate air pollution.³²⁹ Congress entrusted the Administrator of the EPA with significant discretion to determine appropriate emissions measures. Congress delegated the Administrator the authority to determine whether pipelines and other stationary sources endanger public health and welfare; section 111 of the CAA directs the Administrator of the EPA “to publish (and from time to time thereafter shall revise) a list of categories of stationary sources. He shall include a category of sources in such list if in *his judgment* it causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare”³³⁰ and to establish standards of performance for the identified stationary sources.³³¹ The CAA requires the Administrator to conduct complex balancing when determining a standard of performance, taking into consideration what is technologically achievable and the cost to achieve that standard.³³²

115. In addition, the CAA allows the Administrator to “distinguish among classes, types, and sizes within categories of new sources for the purpose of establishing such standards.”³³³ The Act also permits the Administrator, with the consent of the Governor of the State in

³²⁸ *American Elec. Power Co., Inc. v. Conn.*, 564 U.S. 410, 428 (2011).

³²⁹ *See id.* at 419.

³³⁰ 42 U.S.C. § 7411(b)(1)(A) (2018).

³³¹ *Id.* § 7411(b)(1)(B).

³³² *Id.* § 7411(a)(1).

³³³ *Id.* § 7411(a)(2).

which the source is to be located, to waive its requirements “to encourage the use of an innovative technological system or systems of continuous emission reduction.”³³⁴

116. Congress also intended that states would have a role in establishing measures to mitigate emissions from stationary sources. Section 111(f) notes that “[b]efore promulgating any regulations . . . or listing any category of major stationary sources . . . the Administrator shall consult with appropriate representatives of the Governors and of State air pollution control agencies.”³³⁵

117. Thus, for the Commission to undertake to establish GHG emission standards or mitigation measures out of whole cloth would impede the significant discretion and complex balancing that the CAA entrusts in the EPA Administrator, and would eliminate the role of the States.

12. Connected Actions

118. Sierra Club contends that the DOE review of whether to authorize exports to non-Free Trade Agreement (FTA) nations is a “connected action” that must be considered in the EIS,³³⁶ claiming that the EIS should have considered gas production and use as indirect impacts of the non-FTA nation authorization, which DOE has acknowledged has reasonably foreseeable indirect impacts on gas production and use.³³⁷

119. Pursuant to CEQ regulations, “connected actions” include actions that: (a) automatically trigger other actions, which may require an EIS; (b) cannot or will not proceed without previous or simultaneous actions; or (c) are interdependent parts of a larger action and depend on the larger action for their justification.³³⁸ In evaluating whether multiple actions are, in fact, connected actions, courts have employed a “substantial independent utility” test, which the Commission finds useful for determining whether the

³³⁴ *Id.* § 7411(j)(1)(A).

³³⁵ *Id.* § 7411(f)(3).

³³⁶ Sierra Club Request for Rehearing and Stay at 6, 49-50.

³³⁷ *Id.* at 51.

³³⁸ 40 C.F.R. § 1508.25(a)(1) (2019).

three criteria for a connected action are met. The test asks “whether one project will serve a significant purpose even if a second related project is not built.”³³⁹

120. The DOE authorization for Rio Grande to export to non-FTA nations is not a connected action to the Commission’s authorization for the Rio Grande LNG Terminal and Rio Bravo Pipeline. As explained in the November 22 Order, as required by NGA section 3(c), in 2016, DOE issued an instant grant of authority to Rio Grande to export 1,318 billion cubic feet per year, which is approximately equivalent to 27 MTPA of LNG to free trade nations.³⁴⁰ No additional trade authorizations are needed for the terminal to operate. Because the terminal already has a significant purpose and could proceed absent the pending authorization for non-FTA nations, the two are not connected actions.

121. Sierra Club disagrees and argues that, despite a full authorization for FTA nations, as a practical matter, the project is nonetheless dependent on non-FTA nation authorization to proceed.³⁴¹ As evidence, Sierra Club points out that no other large LNG export proposal has proceeded without non-FTA nation authorization, there may not be a large enough LNG market in FTA countries to support project exports, and Rio Grande’s parent company, NextDecade, has a memorandum of understanding with an Irish importer to develop an LNG import terminal with a capacity of 3 MTPA and Ireland is not a FTA nation.³⁴² Sierra Club’s claim that all LNG projects rely on non-FTA nation authorization is speculative and its claims about the size of the FTA nation LNG market is unsupported. As for Sierra Club’s claim that the projects will serve a future import facility in a non-FTA nation, that future facility has yet to be approved and there is no indication that the projects will serve it, let alone are reliant on it, when Rio Grande previously secured FTA nation authorization for the Rio Grande LNG Terminal’s full export capacity.

122. Sierra Club next contends that even if the Rio Grande LNG Terminal does not depend on non-FTA nation authorization, the two actions are connected because the non-FTA nation exports authorization does not have independent utility absent the Rio Grande LNG Terminal.³⁴³ But under CEQ’s definition of a connected action, Rio Grande must have an

³³⁹ *Coalition on Sensible Transp., Inc. v. Dole*, 826 F.2d 60, 69 (D.C. Cir. 1987). See also *O’Reilly v. U.S. Army Corps of Eng’rs*, 477 F.3d 225, 237 (5th Cir. 2007) (defining independent utility as whether one project “can stand alone without requiring construction of the other [projects] either in terms of the facilities required or of profitability”).

³⁴⁰ See *Rio Grande LNG, LLC*, DOE/FE Docket No. 15-190-LNG, Order No. 3869.

³⁴¹ Sierra Club Request for Rehearing and Stay at 49-50.

³⁴² *Id.* at 50.

³⁴³ *Id.*

interdependent relationship with the non-FTA nation authorization.³⁴⁴ Nothing about the Rio Grande LNG Terminal “triggers” or mandates non-FTA nation authorization and, as discussed, the Rio Grande LNG Terminal can proceed without such authorization. Moreover, Sierra Club does not make any showing that the delivery of natural gas to non-FTA nations, as opposed to FTA nations, has differing environmental effects.

13. Public Interest Determination

123. Sierra Club argues that the November 22 Order fails to provide a reasoned explanation for why the project is in the public interest under the NGA, when the project will have significant adverse impacts on the environment.³⁴⁵ As discussed, the Commission determined that the NGA section 3 project was not inconsistent with the public interest and the NGA section 7 project was required by the public convenience and necessity based on all information in the record, including information presented in the Final EIS. Although the Final EIS identified some adverse environmental impacts, the Commission found that the project, if constructed and operated as described in the Final EIS with required conditions, is an environmentally acceptable action and, consequently, based on all the other factors discussed in the November 22 Order, the Rio Grande LNG Terminal is not inconsistent with the public interest and the Rio Bravo pipeline is in the public convenience and necessity.³⁴⁶ We affirm that decision with the revised discussion of potentially significant ozone impacts and impacts on environmental justice communities.

C. Motion for Stay

124. Sierra Club requests that the Commission stay the November 22 Order pending issuance of an order on rehearing.³⁴⁷ This order addresses and denies their requests for rehearing; accordingly, we dismiss the requests for stay as moot.

³⁴⁴ 40 C.F.R. § 1508.25(a)(1). *See also Del. Riverkeeper Network v. FERC*, 753 F.3d 1304, 1313 (D.C. Cir. 2014) (finding that four pipeline proposals were connected actions because the four projects would result in “a single pipeline” that was “linear and physically interdependent” and because the projects were financially interdependent).

³⁴⁵ Sierra Club Request for Rehearing and Stay at 51.

³⁴⁶ November 22 Order, 169 FERC ¶ 61,131 at P 133.

³⁴⁷ Sierra Club Request for Rehearing and Stay at 51.

The Commission orders:

(A) Sierra Club's request for rehearing is hereby denied, as discussed in the body of this order.

(B) John Young's request for rehearing is hereby dismissed, as discussed in the body of this order.

(C) Sierra Club's request for stay is hereby dismissed as moot, as discussed in the body of this order.

By the Commission. Commission Glick is dissenting with a separate statement attached.

(S E A L)

Kimberly D. Bose,
Secretary.

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Rio Grande LNG, LLC
Rio Bravo Pipeline Company, LLC

Docket Nos. CP16-454-001
CP16-455-001

(Issued January 23, 2020)

GLICK, Commissioner, *dissenting*:

1. I dissent from today's order because it violates both the Natural Gas Act¹ (NGA) and the National Environmental Policy Act² (NEPA). Rather than wrestling with the Project's³ adverse impacts on the environment and the surrounding community, today's order makes clear that those impacts are little more than a bump in the road to approving the Project.⁴

2. As an initial matter, the Commission continues to treat climate change differently than all other environmental impacts. The Commission steadfastly refuses to assess whether the impact of the Project's greenhouse gas (GHG) emissions on climate change is significant, even though it quantifies the GHG emissions caused by the Project. Claiming that the Project is "environmentally acceptable" while simultaneously refusing to assess its impact on the most important environmental issue of our time is arbitrary and capricious and not the product of reasoned decisionmaking.⁵

3. In addition, I am also deeply troubled by the environmental justice implications of today's order. All three of the Brownsville LNG facilities⁶ are located in Cameron

¹ 15 U.S.C. §§ 717b, 717f (2018).

² National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321 *et seq.*

³ Today's order denies rehearing of the Commission's order authorizing both the Rio Grande LNG, LLC's (Rio Grande) LNG export facility and associated natural gas pipeline facilities (collectively, the Project) pursuant to section 3 and section 7 of the NGA, respectively.

⁴ *Rio Grande LNG, LLC*, 170 FERC ¶ 61,046, at PP 108-109 (2020) (Rehearing Order); *Rio Grande LNG, LLC*, 169 FERC ¶ 61,131, at PP 104-105 (2019) (Certificate Order); Final Environmental Impact Statement at 4-256 – 4-288 (EIS).

⁵ Rehearing Order, 170 FERC ¶ 61,046 at P 109.

⁶ In addition to Rio Grand LNG, the Commission also simultaneously approved

County, Texas—a region of the country where roughly one third of the population is below the poverty line and the majority is made up of minority groups.⁷ I fully appreciate that the jobs and economic stimulus that a facility like the Project can provide may be especially important in a community facing economic challenges. But we cannot lose sight of the cumulative environmental toll that new industrial development can take on communities such as Cameron County. Far from seriously considering those impacts, today's order shrugs them off, reasoning that because they fall almost entirely on low-income or minority communities, those impacts do not fall disproportionately on those communities. That conclusion is both unreasoned and an abdication of our responsibility to the public interest.

4. Finally, I am concerned about the Commission's cursory analysis and consideration of the Project's impacts on local air quality and endangered species as well as how to mitigate those impacts. Collectively, the Brownsville LNG facilities will have significant adverse consequences on the surrounding region that, in my view, demand a more thorough analysis under both NEPA and the NGA than they receive in today's order.

I. The Commission's Public Interest Determinations Are Not the Product of Reasoned Decisionmaking

5. The NGA's regulation of LNG import and export facilities "implicate[s] a tangled web of regulatory processes" split between the U.S. Department of Energy (DOE) and the Commission.⁸ The NGA establishes a general presumption favoring the import and export of LNG unless there is an affirmative finding that the import or export "will not be

the Annova LNG facility, *Annova LNG Common Infrastructure, LLC*, 169 FERC ¶ 61,132 (2019), and the Texas Brownsville LNG facility, *Texas LNG Brownsville LLC*, 169 FERC ¶ 61,130 (2019). I will refer to these collectively as the Brownsville LNG facilities.

⁷ Rehearing Order, 170 FERC ¶ 61,046 at P 64 ("Commission staff concluded that within the census block groups intersected by a two-mile radius around the pipeline facilities and LNG terminal site, the minority population percentages in 24 of the 25 affected tracts exceed the EPA's categorical thresholds to be minority populations or low-income populations, or in most cases both."); *id.* P 66 (similar); EIS at 4-235 (noting that the poverty rate in Cameron County is roughly a third); EIS at 4-236 (noting that three out of the four blocks of land that was studied around the LNG facility were made up of more than 50 percent minority populations).

⁸ *Sierra Club v. FERC*, 827 F.3d 36, 40 (D.C. Cir. 2016) (*Freeport*).

consistent with the public interest.”⁹ Section 3 of the NGA provides for two independent public interest determinations: One regarding the import or export of LNG itself and one regarding the facilities used for that import or export.

6. DOE determines whether the import or export of LNG is consistent with the public interest, with transactions among free trade countries legislatively deemed consistent.¹⁰ Separately, the Commission evaluates whether “an application for the siting, construction, expansion, or operation of an LNG terminal” is itself consistent with the public interest.¹¹ Pursuant to that authority, the Commission must approve a proposed LNG facility unless the record shows that the facility would be inconsistent with the public interest.¹² Today’s order fails to satisfy that standard in multiple respects.

⁹ 15 U.S.C. § 717b(a); see *EarthReports, Inc. v. FERC*, 828 F.3d 949, 953 (D.C. Cir. 2016) (citing *W. Va. Pub. Servs. Comm’n v. Dep’t of Energy*, 681 F.2d 847, 856 (D.C. Cir. 1982) (“NGA [section] 3, unlike [section] 7, ‘sets out a general presumption favoring such authorization.’”)). Under section 7 of the NGA, the Commission approves a proposed pipeline if it is shown to be consistent with the public interest, while under section 3, the Commission approves a proposed LNG import or export facility unless it is shown to be inconsistent with the public interest. Compare 15 U.S.C. §717b(a) with 15 U.S.C. §717f(a), (e).

¹⁰ 15 U.S.C. § 717b(c). The courts have explained that, because the authority to authorize the LNG exports rests with DOE, NEPA does not require the Commission to consider the upstream or downstream GHG emissions that may be indirect effects of the export itself when determining whether the related LNG export facility satisfies section 3 of the NGA. See *Freeport*, 827 F.3d at 46-47; see also *Sierra Club v. FERC*, 867 F.3d 1357, 1373 (D.C. Cir. 2017) (*Sabal Trail*) (discussing *Freeport*). Nevertheless, NEPA requires that the Commission consider the direct GHG emissions associated with a proposed LNG export facility. See *Freeport*, 827 F.3d at 41, 46.

¹¹ 15 U.S.C. § 717b(e). In 1977, Congress transferred the regulatory functions of NGA section 3 to DOE. DOE, however, subsequently delegated to the Commission authority to approve or deny an application for the siting, construction, expansion, or operation of an LNG terminal, while retaining the authority to determine whether the import or export of LNG to non-free trade countries is in the public interest. See *EarthReports*, 828 F.3d at 952-53.

¹² See *Freeport*, 827 F.3d at 40-41.

A. The Commission's Public Interest Determination Does Not Adequately Consider Climate Change

7. In making its public interest determination, the Commission examines a proposed facility's impact on the environment and public safety, among other things. A facility's impact on climate change is one of the environmental impacts that must be part of a public interest determination under the NGA.¹³ Nevertheless, the Commission maintains that it need not consider whether the Project's contribution to climate change is significant in this order because it lacks a means to do so—or at least so it claims.¹⁴ However, the most troubling part of the Commission's rationale is what comes next. Based on this alleged inability to assess the significance of the Project's impact on climate change, the Commission concludes that the Project's environmental impacts would generally be reduced to “less-than-significant” levels and the Project is “environmentally acceptable.”¹⁵ Think about that. The Commission is saying out of one side of its mouth that it cannot assess the significance of the Project's impact on climate change¹⁶ while, out of the other side of its mouth, assuring us that its environmental

¹³ See *Sabal Trail*, 867 F.3d at 1373 (explaining that the Commission must consider a pipeline's direct and indirect GHG emissions because the Commission may “deny a pipeline certificate on the ground that the pipeline would be too harmful to the environment”); see also *Atl. Ref. Co. v. Pub. Serv. Comm'n of N.Y.*, 360 U.S. 378, 391 (1959) (holding that the NGA requires the Commission to consider “all factors bearing on the public interest”).

¹⁴ Rehearing Order, 170 FERC ¶ 61,046 at P 100 (claiming that the Commission cannot assess the significance of emissions because there are “industry sector or regional emission targets or budgets with which to compare project emissions”); see also Certificate Order, 169 FERC ¶ 61,131 at PP 105-106 (similar); EIS at 4-481 – 4-482 (similar).

¹⁵ Rehearing Order, 170 FERC ¶ 61,046 at P 109 (asserting that the Project is environmentally acceptable even without determining whether its GHG emissions are significant or whether it will have a significant impact on climate change); Certificate Order, 169 FERC ¶ 61,131 at P 56 (concluding that the Project “would result in adverse environmental impacts, but that these impacts would be reduced to less-than-significant levels with the implementation of applicants' proposed, and Commission staff's recommended, avoidance, minimization, and mitigation measures”); EIS at ES-19.

¹⁶ See, e.g., Rehearing Order, 170 FERC ¶ 61,046 at PP 108-109; Certificate Order, 169 FERC ¶ 61,131 at PP 105-106; EIS 4-482 (“[W]e are unable to determine the significance of the Project's contribution to climate change.”).

impacts are generally not significant and the Project is environmentally acceptable.¹⁷ That is ludicrous, unreasoned, and an abdication of our responsibility to give climate change the “hard look” that the law demands.¹⁸

8. It also means that the Project’s impact on climate change does not play a meaningful role in the Commission’s public interest determination, no matter how often the Commission assures us that it does.¹⁹ Using the approach in today’s order, the Commission will always conclude that a project will not have a significant environmental impact irrespective of that project’s actual GHG emissions or those emissions’ impact on climate change. If the Commission’s conclusion will not change no matter how many GHG emissions a project causes, those emissions cannot, as a logical matter, play a meaningful role in the Commission’s public interest determination. A public interest determination that systematically excludes the most important environmental consideration of our time is contrary to law, arbitrary and capricious, and not the product of reasoned decisionmaking.

9. The failure to meaningfully consider the Project’s GHG emissions is all-the-more indefensible given the volume of GHG emissions at issue in this proceeding. The Project will directly release over 9 million tons of GHG emissions per year,²⁰ which is equivalent

¹⁷ Rehearing Order, 170 FERC ¶ 61,046 at P 109; Certificate Order, 169 FERC ¶ 61,131 at P 56 (stating that, with few exceptions and not considering cumulative impacts, the Project’s environmental impact will be “reduced to less-than-significant levels”).

¹⁸ See, e.g., *Myersville Citizens for a Rural Cmty., Inc. v. FERC*, 783 F.3d 1301, 1322 (D.C. Cir. 2015) (explaining that agencies cannot overlook a single environmental consequence if it is even “arguably significant”); see also *Michigan v. EPA*, 135 S. Ct. 2699, 2706 (2015) (“Not only must an agency’s decreed result be within the scope of its lawful authority, but the process by which it reaches that result must be logical and rational.” (internal quotation marks omitted)); *Motor Vehicle Mfrs. Ass’n, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (explaining that agency action is “arbitrary and capricious if the agency has . . . entirely failed to consider an important aspect of the problem, [or] offered an explanation for its decision that runs counter to the evidence before the agency”).

¹⁹ Cf. Rehearing Order, 170 FERC ¶ 61,046 at P 109 (claiming that the Commission relied on “GHG emissions analysis” in certificating the Project even though, by its own admission, it did not assess the impact that the GHG emissions might have).

²⁰ Certificate Order, 169 FERC ¶ 61,131 at P 105; EIS at 4-262 & Table 4.11.1-7 (estimating the Project’s emissions from routine operation).

to the annual GHG emissions of roughly 2 million automobiles.²¹ The Commission acknowledges that “GHGs emissions due to human activity are the primary cause of increased levels of all GHG [sic] since the industrial age,”²² a result that the Commission has previously acknowledged (although notably not in the EIS accompanying today’s order) will “threaten the public health and welfare of current and future generations through climate change.”²³ In light of this undisputed relationship between anthropogenic GHG emissions and climate change, the Commission must carefully consider the Project’s contribution to climate change when determining whether the Project is consistent with the public interest—a task that it entirely fails to accomplish in today’s order.

B. The Commission’s Consideration of the Project’s Other Adverse Impacts Is Also Arbitrary and Capricious

10. As I explained in my dissent from the underlying order, the Commission “cannot turn a blind eye to the incremental impact that increased pollution will have on economically disadvantaged communities.”²⁴ And while I “fully appreciate that the jobs and economic stimulus that a facility like the Project can provide may be especially important in a community facing economic challenges,”²⁵ a reasoned application of the public interest cannot recognize those benefits and at the same time fail to wrestle with the Project’s adverse consequences for vulnerable communities. Carefully considering those adverse impacts is important both because vulnerable communities often lack the

²¹ This figure was calculated using the U.S. Environmental Protection Agency’s (EPA) Greenhouse Gas Equivalencies Calculator. See U.S. Env’tl. Prot. Agency, Greenhouse Gas Equivalencies Calculator, <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator> (last visited Jan. 22, 2020).

²² EIS at 4-243.

²³ Environmental Assessment, Docket No. CP18-512-000 at 112 (Mar. 29, 2019); *see also id.* at 235 (“Construction and operation of the Project would increase the atmospheric concentration of GHGs in combination with past and future emissions from all other sources and contribute incrementally to future climate change impacts.”).

²⁴ Certificate Order, 169 FERC ¶ 61,131 (Glick, Comm’r, dissenting at P 9).

²⁵ *Id.*; *see* Rehearing Order, 170 FERC ¶ 61,046 at P 18 (finding a market need for the Project, in part because gas “transportation will provide domestic public benefits, including . . . “supporting domestic jobs in gas production, transportation, and distribution, and domestic jobs in industrial sectors that rely on gas or support the production, transportation, and distribution of gas”).

means to retain high-priced counsel to vindicate their interests and because of the long history in which these communities have “frequently experience[d] a disproportionate toll from the development of new industrial facilities.”²⁶ Especially in a case such as this one, where the adverse impacts include the type of potentially serious impacts on human health that can have cascading consequences in economically disadvantaged areas, the failure to seriously wrestle with those adverse effects is both profoundly unfair and inimical to the public interest.

11. Nevertheless, the Commission barely bats an eye at the impacts its order will have on environmental justice²⁷ communities. Instead, today’s order dismisses environmental justice concerns because, get this, no environmental justice communities are “disproportionately affected” by the Project since almost all the communities affected—96 percent of the relevant census tracts²⁸—are either low-income or minority communities.²⁹ In other words, the Commission concludes that because the Project basically affects only low-income or minority populations, its effects do not fall disproportionately on those communities.³⁰ Similarly, the Commission rejects the Sierra Club’s arguments,³¹ reasoning that, because the communities affected by the Project are

²⁶ Certificate Order, 169 FERC ¶ 61,131 (Glick, Comm’r, dissenting at P 9); *cf.*, *e.g.*, *Friends of Buckingham v. State Air Pollution Control Bd.*, No. 19-1152, 2020 WL 63295, at *14 (4th Cir. Jan. 7, 2020) (“As Justice Douglas pointed out nearly fifty years ago, as often happens with interstate highways, the route selected was through the poor area of town, not through the area where the politically powerful people live.” (internal quotation marks and alterations omitted)).

²⁷ “The principle of environmental justice encourages agencies to consider whether the projects they sanction will have a disproportionately high and adverse impact on low-income and predominantly minority communities.” *Sabal Trail*, 867 F.3d at 1368 (internal quotation marks omitted).

²⁸ Rehearing Order, 170 FERC ¶ 61,046 at P 64.

²⁹ *See, e.g., id.* P 66 (“Because here all project-affected populations are minority or low-income populations, or both, it is not possible that impacts will be disproportionately concentrated on minority and low-income populations versus on some other project-affected comparison group.”).

³⁰ *See id.* P 67 (“Given that all project-affected populations are minority or low-income populations, the EIS objectively concluded that impacts would not be disproportionate but would ‘apply to everyone’ and would ‘not be focused on or targeted to any particular demographic group.’” (quoting EIS at 4-237 and 4-468)).

³¹ *E.g.*, Sierra Club Rehearing Request at 32 (“FERC only concluded that

all almost entirely environmental justice communities, those communities do not bear a disproportionate share of the Project's total adverse impacts.³²

12. But those observations only underscore *my* point. Concerns about environmental justice are rooted in the fact that low-income and minority populations often bear the brunt of the environmental and human health impacts of new industrial development.³³ The Commission's observation that functionally all the areas adversely affected by the Project are home to those communities ought to be a reason to take a harder look at the Project's environmental justice implications, not to brush them off.³⁴ The Commission's position misses that point entirely. Arguing that environmental justice is relevant to the public interest only when a fraction of a Project's adverse impacts fall on environmental justice communities and not when substantively all of those impacts fall on environmental justice communities is both arbitrary and capricious and, frankly, hard to fathom.³⁵ After all, the upshot of the Commission's approach is to signal to developers that they can side step environmental justice concerns so long as they ensure that all, or substantially all, of a project's adverse impacts fall on low-income or minority communities.

13. Moreover, in the one instance in which the Commission delves into a specific environmental justice concern, its dismissal of that concern is equally unreasoned. On rehearing, the Commission for the first time recognizes the potential for the cumulative

'everyone' would suffer impacts of the project, not whether the majority-minority or low income communities near the facility would be subject to more adverse impacts given their locale.'").

³² *E.g.*, Rehearing Order, 170 FERC ¶ 61,046 at P 69.

³³ See Certificate Order, 169 FERC ¶ 61,131 (Glick, Comm'r, dissenting at P 9); *cf.*, *e.g.*, *Friends of Buckingham*, No. 19-1152, 2020 WL 63295, at *14 (4th Cir. Jan. 7, 2020) (noting the "'evidence that a disproportionate number of environmental hazards, polluting facilities, and other unwanted land uses are located in communities of color and low-income communities'" (quoting *Nicky Sheats, Achieving Emissions Reductions for Environmental Justice Communities Through Climate Change Mitigation Policy*, 41 Wm. & Mary Env'tl. L. & Pol'y Rev. 377, 382 (2017))).

³⁴ Certificate Order, 169 FERC ¶ 61,131 (Glick, Comm'r, dissenting at P 9).

³⁵ Note that I am not arguing that the EIS was somehow inherently deficient, *cf. Sabal Trail*, 867 F.3d at 1368-71, but instead that it is arbitrary and capricious to dismiss environmental justice concerns under the Commission's public interest analysis on the basis that the Project will adversely affect only environmental justice communities.

effects of the Project and other sources in the region to contribute to a violation of the 8-hour National Ambient Air Quality Standards (NAAQS) for Ozone.³⁶ Ozone is linked to a number of serious health problems, such as asthma and respiratory disease, including chronic obstructive pulmonary disorder (COPD).³⁷ After reciting a string of general statistics about the incidence of asthma and respiratory disease among different racial and age groups in Texas, the Commission concludes that those numbers do not indicate that “the anticipated exposure to ozone in minority and low-income communities [around the Project] would result in a disproportionately high and adverse impact to these communities.”³⁸

14. But it is not at all clear from today’s order how the Commission reaches that conclusion. As best I can tell, the Commission is suggesting that, because Hispanic and Latino populations are not more susceptible than the general population to asthma or respiratory disease, exposing the predominately Hispanic and Latino population surrounding the project to ozone levels that the U.S. Environmental Protection Agency (EPA) has deemed unsafe will not disproportionately affect those individuals.³⁹ In other words, the Commission is taking the position that there are no environmental justice concerns with a project that exclusively pollutes poor or minority communities unless the residents of those communities have a predisposition to suffer from those pollutants.

15. That is nonsense. Unsafe levels of ozone can sicken healthy people, even if those effects are not as severe as for individuals with asthma or other respiratory illnesses. The fact that Hispanic or Latino populations within Texas as a whole are relatively less likely to suffer from asthma or to die from respiratory disease than other racial groups⁴⁰ tells us nothing about the actual impacts that the elevated ozone levels caused by the Project will have on minority and low-income groups in the affected areas. For example, assume for the sake of argument that the ozone exposure caused by the Project doubles the incidence of COPD in the affected communities. The population-wide incidence of respiratory disease does nothing to help us assess whether and how this Project will

³⁶ Rehearing Order, 170 FERC ¶ 61,046 at PP 55, 62. This includes the other Brownsville LNG facilities and the ships that would serve them.

³⁷ See Rehearing Order, 170 FERC ¶ 61,046 at P 61 (discussing health effects ozone exposure); *see generally* National Ambient Air Quality Standards for Ozone, 80 Fed. Reg. 65,292 (2015) (rule establishing current 8-hour ozone NAAQS).

³⁸ Rehearing Order, 170 FERC ¶ 61,046 at P 76.

³⁹ *Id.* at n.244.

⁴⁰ *Id.* P 76.

disproportionately affect the environmental justice communities in the surrounding area or what that means for the public interest.⁴¹ That cursory and dismissive analysis is the perfect window into how seriously the Commission takes environmental justice concerns.

16. In addition, the cumulative effects of the Brownsville LNG facilities will have a significant adverse impact on endangered species, including the ocelot, the jaguarundi, and the aplomado falcon.⁴² Although the Commission reports those impacts in its EIS⁴³ and mentions them briefly in the original order and in passing in today's order on rehearing,⁴⁴ it is far from clear whether and how they factor into the Commission's public interest analysis. Given the extent of those adverse impacts on endangered species—which appear to be more extensive than those caused by other energy infrastructure projects that the Commission has approved under NGA section 3 and section 7 in recent years⁴⁵—we ought to do more than simply recite the potential harm and then proceed, post haste, to make a public interest determination without any further discussion.

II. The Commission Fails to Satisfy Its Obligations under NEPA

17. The Commission's NEPA analysis of the Project's GHG emissions is similarly flawed. As an initial matter, to seriously evaluate the environmental consequences of the Project under NEPA, the Commission must consider the harm caused by its GHG

⁴¹ For example, although asthma can aggravate the effects of ozone exposure, ozone can have serious health effects in non-asthmatics and can lead to other conditions, including COPD. See U.S. Env'tl. Prot. Agency, *Health Effects of Ozone Pollution*, <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution> (last visited Jan. 22, 2020).

⁴² See EIS at ES-19, 4-447 – 4-450 (ocelot and jaguarundi); *id.* at 4-445 (aplomado falcon).

⁴³ See *supra* note 42.

⁴⁴ *E.g.*, Rehearing Order, 170 FERC ¶ 61,046 at PP 87-88 (noting that the Commission conditioned approval of the Project on some, but not all, of the conservation measures proposed in the developer's submission to the Fish and Wildlife Service); Certificate Order, 169 FERC ¶ 61,131 at PP 56, 113, 115.

⁴⁵ For example, the EIS states “the primary threat to ocelot and jaguarundi populations in the United States is habitat loss, degradation, and fragmentation” noting that for ocelots in particular even “incremental habitat loss could be significant.” EIS at 4-448. To my knowledge, there is no dispute that the Commission's approval of the Brownsville LNG facilities will result in considerable loss of habitat for those species.

emissions and “evaluate the ‘incremental impact’ that those emissions will have on climate change or the environment more generally.”⁴⁶ As noted, the operation of the Project will emit more than 9 million tons of GHG emissions per year.⁴⁷ Although quantifying the Project’s GHG emissions is a necessary step toward meeting the Commission’s NEPA obligations, listing the volume of emissions alone is insufficient.⁴⁸ Identifying the potential consequences that those emissions will have for climate change is essential if NEPA is to play the disclosure and good government roles for which it was designed. The Supreme Court has explained that NEPA’s purpose is to “ensure[] that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts” and to “guarantee[] that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision.”⁴⁹ It is hard to see how hiding the ball by refusing to assess the significance of the Project’s climate impacts is consistent with either of those purposes.

18. In addition, under NEPA, a finding of significance informs the Commission’s inquiry into potential ways of mitigating environmental impacts.⁵⁰ An environmental

⁴⁶ *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1216 (9th Cir. 2008); *WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41, 51 (D.D.C. 2019) (explaining that the agency was required to “provide the information necessary for the public and agency decisionmakers to understand the degree to which [its] decisions at issue would contribute” to the “impacts of climate change in the state, the region, and across the country”).

⁴⁷ Certificate Order, 169 FERC ¶ 61,131 at P 105; EIS at 4-262 & Table 4.11.1-7; *see* Rehearing Order, 170 FERC ¶ 61,046 at n.295 (noting that the Commission quantified the Project’s direct emissions).

⁴⁸ *See Ctr. for Biological Diversity*, 538 F.3d at 1216 (“While the [environmental document] quantifies the expected amount of CO₂ emitted . . . , it does not evaluate the ‘incremental impact’ that these emissions will have on climate change or on the environment more generally”); *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 995 (9th Cir. 2004) (“A calculation of the total number of acres to be harvested in the watershed is a necessary component . . . , but it is not a sufficient description of the actual environmental effects that can be expected from logging those acres.”).

⁴⁹ *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 768 (2004) (citing *Robertson v. Methow Valley Citizens Coun.*, 490 U.S. 332, 349 (1989)).

⁵⁰ 40 C.F.R. § 1502.16 (2018) (NEPA requires an implementing agency to form a “scientific and analytic basis for the comparisons” of the environmental consequences of

review document must “contain a detailed discussion of possible mitigation measures” to address adverse environmental impacts.⁵¹ “Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects” of a project, meaning that an examination of possible mitigation measures is necessary to ensure that the agency has taken a “hard look” at the environmental consequences of the action at issue.⁵²

19. The Commission responds that it need not determine whether the Project’s contribution to climate change is significant because “[t]here is no universally accepted methodology” for assessing the harms caused by the Project’s contribution to climate change.⁵³ But the lack of a single consensus methodology does not prevent the Commission from adopting *a* methodology, even if it is not universally accepted. The Commission could, for example, select one methodology to inform its reasoning while also disclosing its potential limitations or the Commission could employ multiple methodologies to identify a range of potential impacts on climate change. In refusing to assess a project’s climate impacts without a perfect model for doing so, the Commission sets a standard for its climate analysis that is higher than it requires for any other environmental impact.

20. In any case, the Commission has several tools to assess the harm from the Project’s contribution to climate change. For example, by measuring the long-term damage done by a ton of carbon dioxide, the Social Cost of Carbon links GHG emissions

its action in its environmental review, which “shall include discussions of . . . [d]irect effects and their significance.”).

⁵¹ *Robertson*, 490 U.S. at 351.

⁵² *Id.* at 352.

⁵³ EIS at 4-481 – 4-482 (stating that “there is no universally accepted methodology to attribute discrete, quantifiable, physical effects on the environment to Project’s incremental contribution to GHGs” and “[w]ithout either the ability to determine discrete resource impacts or an established target to compare GHG emissions against, we are unable to determine the significance of the Project’s contribution to climate change”); *see* Certificate Order, 169 FERC ¶ 61,131 at P 106 (“The Commission has also previously concluded it could not determine whether a project’s contribution to climate change would be significant.”); *see also* Rehearing Order, 170 FERC ¶ 61,046 at P 100 (stating that the Commission cannot assess significance without “industry sector or regional emission targets or budgets with which to compare project emissions”).

global problem like climate change, a measure for translating a single project's climate change impacts into concrete and comprehensible terms plays a useful role in the NEPA process by putting the harm in terms that are readily accessible for both agency decisionmakers and the public at large. Yet, the Commission continues to ignore the Social Cost of Carbon, relying instead on deeply flawed reasoning that I have previously critiqued at length.⁵⁴

21. Furthermore, even without a formal tool or methodology, the Commission can consider all factors and determine, quantitatively or qualitatively, whether the Project's GHG emissions will have a significant impact on climate change. After all, that is precisely what the Commission does in other aspects of its environmental review, where the Commission makes several significance determinations without the tools it claims it needs to assess the significance of the Project's impact on climate change.⁵⁵ The Commission's refusal to similarly analyze the Project's impact on climate change is arbitrary and capricious.

22. The Commission responds that it lacks an "objective" basis for assessing the significance of GHG emissions.⁵⁶ New adjective, same problem. Nothing in today's order explains why assessing the significance of a project's impact on wetlands or vegetation based on the number of acres affected⁵⁷ is any different from assessing the significance of a project's impact on climate change based on the quantity of GHGs emitted. Simply labeling one inquiry "objective" and the other not is reasoned decisionmaking. In any case, even the recent Council on Environmental Quality draft NEPA guidance on consideration of GHG emissions—hardly a radical environmental manifesto—recognizes that the quantity of GHG emissions "may be used as a proxy for assessing potential climate effects."⁵⁸ And yet, contrary to even that guidance, today's

⁵⁴ See, e.g., *Fla. Se. Connection, LLC*, 164 FERC ¶ 61,099 (2018) (Glick, Comm'r, dissenting).

⁵⁵ See, e.g., EIS at 4-191 – 4-198, 4-59 – 4-69, 4-76 – 4-84, 4-86 – 4-103, 4-107 – 4-112 (concluding that there will be no significant impact on recreational and special interest areas, wetlands, vegetation, wildlife, migratory bird populations, pollinator habitat, and aquatic resources due to cooling water intake, among other things).

⁵⁶ Rehearing Order, 170 FERC ¶ 61,046 at P 105.

⁵⁷ See *id.* P 106.

⁵⁸ Draft National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions, 84 Fed. Reg. 30,097, 30,098 (2019) ("A projection of a proposed action's direct and reasonably foreseeable indirect GHG emissions may be used

order insists that a quantity of GHG emissions does not tell us anything about a project's effects on climate change or the significance thereof.⁵⁹ That proposition makes sense only if you do not believe that there is a direct relationship between GHG emissions and climate change.

23. And even if the Commission were to determine that the Project's GHG emissions are significant, that is not the end of the analysis. Instead, as noted above, the Commission could blunt those impacts through mitigation—as the Commission often does with regard to other environmental impacts. The Supreme Court has held that an environmental review must “contain a detailed discussion of possible mitigation measures” to address adverse environmental impacts.⁶⁰ As noted above, “[w]ithout such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.”⁶¹ Consistent with this obligation, the EIS discusses mitigation measures to ensure that the Project's adverse environmental impacts (other than its GHG emissions) are reduced to less-than-significant levels.⁶² And throughout today's order, the Commission uses its conditioning authority under section 3 and section 7 of the NGA⁶³ to implement these mitigation measures, which support its public interest finding.⁶⁴ Once again, however, the Project's climate impacts are treated

as a proxy for assessing potential climate effects.”).

⁵⁹ Rehearing Order, 170 FERC ¶ 61,046 at P 107 (“To assess a project's effect on climate change, the Commission can only quantify the amount of project emissions. That calculated number cannot inform the Commission on climate change effects caused by the project.”)

⁶⁰ *Robertson*, 490 U.S. at 351.

⁶¹ *Id.* at 351-52; *see also* 40 C.F.R. § 1508.20 (defining mitigation); *id.* § 1508.25 (including in the scope of an environmental impact statement mitigation measures).

⁶² *See, e.g.*, Certificate Order, 169 FERC ¶ 61,131 at P 107 (discussing mitigation required by the Commission to address reliability and safety impacts from the Project); *id.* PP 101, 103 (discussing mitigation measures required to address air quality and noise); *id.* PP 77-78 (discussing mitigation measures required to address impacts on vegetation).

⁶³ 15 U.S.C. § 717b(e)(3)(A); *id.* § 717f(e); Certificate Order, 169 FERC ¶ 61,131 at P 129 (“[T]he Commission has the authority to take whatever steps are necessary to ensure the protection of environmental resources . . . , including authority to impose any additional measures deemed necessary.”).

⁶⁴ *See* Certificate Order, 169 FERC ¶ 61,131 at P 129 (explaining that the

differently, as the Commission refuses to identify any potential climate mitigation measures or discuss how such measures might affect the magnitude of the Project's impact on climate change.

24. The Commission responds that it cannot possibly have any authority to mitigate GHG emissions because Congress assigned that responsibility to EPA and the states through the Clean Air Act (CAA).⁶⁵ And it is true that EPA and the states have that authority. But neither that fact nor the Commission's summary of the CAA can carry the weight that today's order would have them bear. As noted, the courts have repeatedly made clear that environmental considerations, including climate change, are relevant to the Commission's application of the NGA's siting provisions and that they may be a basis for denying approval for a project⁶⁶—a fact that my colleagues at least purport not to contest. It is illogical to conclude that the Commission can deny a proposed project based on its environmental impacts, but that it cannot condition approval of a project based on steps to avoid or lessen those same environmental impacts. After all, the Commission does not force developers to go ahead with a project if they do not believe it is worth it based on the Commission's conditions.

25. In addition, the CAA applies to all air pollutants, not just GHGs. And yet the Commission does not throw up its hands when faced with the prospect of mitigating the effects of those other pollutants. Indeed, as discussed further below, in this very order the Commission claims that it considered whether to impose additional mitigation measures for ozone beyond what Texas imposed, but elected not to do because Texas imposed mitigation that the Commission claims to find sufficient.⁶⁷ The order notably does not take the position that the Commission lacks the authority to mitigate the effects of ozone because only EPA and the states have that authority under the CAA. Taking the Commission's position seriously would mean that we lack any authority to impose mitigation of air pollutants beyond that imposed in the requisite state or federal permit—a position at odds with both today's order and past practice. Once again, the Commission is treating GHG emissions differently than all other air pollutants. And I think we all know why.

environmental conditions ensure that the Project's environmental impacts are consistent with those anticipated by the environmental analyses, which found that the Project would not significantly affect the quality of the human environment).

⁶⁵ Rehearing Order, 170 FERC ¶ 61,046 at PP 112-113.

⁶⁶ See *supra* P 7 & n.13.

⁶⁷ Rehearing Order, 170 FERC ¶ 61,046 at P 56.

26. The Project's GHG emissions are not the only flawed aspect of the Commission's NEPA review. As noted, for the first time on rehearing the Commission concludes that the Project, in conjunction with other developments in the area, would cause a violation of the 8-hour NAAQS for ozone.⁶⁸ That cumulative impact would significantly exceed permissible levels by as much as 10 percent.⁶⁹

27. Nevertheless, the Commission does not seriously revisit its determination not to require further mitigation of the Project's contribution to ozone levels.⁷⁰ Given the new finding regarding the impact of ozone in the area, and its potentially serious implications for human health,⁷¹ I would think that reasoned decisionmaking requires, at the very least, that the Commission explicitly compare the current suite of mitigation measures with other options to determine the feasibility of avoiding a violation of the 8-hour ozone NAAQS or reducing the extent of that violation. Instead, today's order notes only that the Project developers "assessed Best Available Control Technologies . . . for all of the terminal's emissions sources" and received the requisite permits from the relevant Texas agencies.⁷²

28. But it does not appear that Texas considered the 8-hour ozone NAAQS violation caused by the cumulative effect of the three Brownsville LNG facilities or whether any additional mitigation steps were appropriate in light of that violation.⁷³ Nor does it

⁶⁸ Those developments include the other Brownsville LNG facilities and the ships that would serve them. On its own, the Project would cause ozone levels in the area to increase by more than 20 percent, which represents the majority of the cumulative increase in ozone in the area. *See id.* PP 52-53, 55.

⁶⁹ That level exceeds not only the current 8-hour ozone NAAQS, but also the previous 8-hour ozone NAAQS level, which the Environmental Protection Agency deemed insufficient to protect human health. *See Murray Energy Corp. v. EPA*, 936 F.3d 597, 606 (D.C. Cir. 2019).

⁷⁰ Rehearing Order, 170 FERC ¶ 61,046 at P 56.

⁷¹ *Cf. id.* P 62 (recognizing that as a result of potential 8-hour ozone NAAQS exceedance, "people in the surrounding communities might experience the health effects of ozone exposure").

⁷² *Id.* P 56.

⁷³ *See* Rio Grande Supplemental Information, Revision 2 of the Terminal's Prevention of Significant Deterioration Air Permit Application § 3 & Table 3-1 (Apr. 3, 2017) (including stationary source emissions from routine operation of the Rio Grande

appear that any entity involved in selecting the proposed pollution control technologies was aware of these cumulative impacts on human health and the environment when making those selections. In light of those facts, I do not believe that such a perfunctory response to a serious NAAQS violation—one with real potential to make people sick—is consistent with the Commission’s responsibility to take a hard look under NEPA or to ensure the public interest under the NGA. After all, what is the point of doing the required cumulative impacts analysis on rehearing if the Commission is simply going to shrug its shoulders and point to state permits that did not consider those cumulative impacts?

29. Finally, the Commission’s failure to consider the significance of the impact of the Project’s GHG emissions is particularly mystifying because NEPA “does not dictate particular decisional outcomes.”⁷⁴ NEPA “‘merely prohibits uninformed—rather than unwise—agency action.’”⁷⁵ The Commission could find that a project contributes significantly to climate change, but that it is nevertheless in the public interest because its benefits outweigh its adverse impacts, including on climate change. That is, after all, exactly what today’s order does with the finding that the Project may cause a violation of the ozone NAAQS, but is nevertheless consistent with the public interest. Taking the matter seriously—and rigorously examining a project’s impacts on climate change—does not necessarily prevent any of my colleagues from ultimately concluding that a project satisfies the relevant public interest standard.

For these reasons, I respectfully dissent.

Richard Glick
Commissioner

LNG Terminal and Compressor Station 3).

⁷⁴ *Sierra Club v. U.S. Army Corps of Engineers*, 803 F.3d 31, 37 (D.C. Cir. 2015).

⁷⁵ *Id.* (quoting *Robertson*, 490 U.S. at 351).



Rio Grande LNG Project – Terminal

Docket No. CP16-454-000

Implementation Plan

Volume 06

Final Design General

Supplement 1

Rio Grande LNG, LLC

ND Document No.	BE Document No.	Date	Revision
RG-NTD-000-REG-NAR-00003	N/A	25-MAR-2020	0
RG-NTD-000-REG-NAR-00003	N/A	15-APR-2020	1

Rio Grande LNG, LLC
Rio Grande LNG Project
CP16-454-000

Implementation Plan
Volume 06
Final Design General

Condition 1

RG Developers shall follow the construction procedures and mitigation measures described in their application and supplements (including responses to staff data requests) and as identified in the EIS, unless modified by the Order. RG Developers must:

- a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
- b. justify each modification relative to site-specific conditions;
- c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
- d. receive approval in writing from the Director of OEP **before using that modification.**

Rio Grande's Response

- a. RGLNG hereby submits a request for approval for design modifications to the Rio Grande terminal [REDACTED]. These design modifications do not impact the construction procedures and mitigation measures or export capacity described in RGLNG's application and Final Environmental Impact Statement (FEIS) and approved by the Commission in its November 22, 2019 Order. Therefore, pursuant to Order Condition 1, RGLNG is not requesting any modification to construction procedures or mitigation measures.
- b. RGLNG can justify each modification as having no impact on any site-specific conditions. [REDACTED]

Rio Grande LNG, LLC
Rio Grande LNG Project
CP16-454-000

Implementation Plan
Volume 06
Final Design General

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- c. RGLNG confirms that the design modifications included in this request provide an equal or greater level of environmental protection than the original measure. More detailed information is provided in each of the above-referenced documents included in this filing, which will collectively demonstrate that:
- CO2 equivalent emissions will be reduced by 21% when compared with the original design;
 - There is a net zero impact to overall site boundaries (which has been validated in the previously approved Full Site Preparation IP Volume 4 and for which no change is required);
 - Noise levels at NSAs are unaffected (as will be demonstrated once plant operations commence, and reports are submitted as required by Order Conditions #35 and #36); and,
 - No new offsite hazards have resulted from these changes.



RIO BRAVO PIPELINE COMPANY, LLC

Application Text & Public Exhibits
(Excluding Exhibit F-1)

VOLUME I PUBLIC

RIO BRAVO PIPELINE PROJECT
Amendment Application
FERC Docket No. CP20-____-000

June 2020

JA602



Rio Bravo Pipeline Company, LLC
5400 Westheimer Court
Houston, Texas
77056-5310

June 15, 2020

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: Rio Bravo Pipeline Company, LLC, Docket No. CP20-____-000
Amendment to Certificate of Public Convenience and Necessity

Dear Ms. Bose:

Pursuant to Section 7(c) of the Natural Gas Act (“NGA”), as amended,¹ and Part 157 of the regulations of the Federal Energy Regulatory Commission (“FERC” or “Commission”),² Rio Bravo Pipeline Company, LLC (“Rio Bravo”) hereby submits this abbreviated application for an amendment (“Amendment Application”) to the certificate of public convenience and necessity issued by the Commission to Rio Bravo by order dated November 22, 2019, in Docket No. CP16-455-000 for the Rio Bravo Pipeline Project (“Project”).³ As described more fully in this Amendment Application, Rio Bravo requests authorization to modify certain aspects of the Project, including a reduction in the total number of compressor stations, the elimination of certain measurement facilities, a change to the maximum allowable operating pressure of the pipelines and header system, and an increase in the diameter of the first pipeline from 42 inches to 48 inches, resulting in an increase in the mainline design capacity on the first pipeline from 2.25 Bcf/d to 2.6 Bcf/d; Rio Bravo is not proposing a change to the Project’s total certificated design capacity of 4.5 Bcf/d.

As the Commission determined in its original certificate order for the Project, the Project is in the public convenience and necessity, and the environmental impacts associated with the Project are acceptable if constructed and operated as described in the final environmental impact statement.⁴ While Rio Bravo continues to be committed to construct the already-certificated Project if the Commission does not approve the updated design proposed herein, the updated design allows Rio Bravo to continue to meet the service requirements of its firm shipper and access significant upstream supply sources and, at the same time, to eliminate two compressor stations and two booster stations from the original design. By updating the design of the Project, Rio Bravo has decreased the above-ground footprint of the Project and overall Project emissions. In addition,

¹ 15 U.S.C. § 717f(c) (2018).

² 18 C.F.R. Part 157 (2019).

³ *Rio Grande LNG, LLC and Rio Bravo Pipeline Company, LLC*, 169 FERC ¶ 61,131 (2019).

⁴ *Id.* at P 133.

Ms. Kimberly D. Bose, Secretary

June 15, 2020

Page 2

the updated design is more efficient hydraulically than the original Project, continues to satisfy Project economics, and does not affect any new landowners.

In addition, Rio Bravo seeks to revise the Project rates and the *pro forma* tariff records to reflect an increase in the overall estimated cost to construct the Project facilities and to establish initial recourse rates for Phase 1 (consisting of the first pipeline, a header system, the compressor station, and related above-ground facilities, including meter stations) and for the entire Project following in-service of Phase 2 (consisting of the second pipeline and the remaining facilities). Rio Bravo is also proposing to establish initial electric power charges that will apply upon the in-service date of Phase 2 and an electric power charge tracker and true-up mechanism. Rio Bravo further proposes to revise the fuel rate percentages to reflect the updated Project design. Rio Bravo respectfully requests that the Commission issue an order approving this Amendment Application by December 17, 2020.

Included herewith are three volumes. Volume I contains public information and is comprised of the Amendment Application and its public exhibits, including the public version of Exhibit F-I (Environmental Report). Volume II contains privileged and confidential information and is comprised of the landowner list. Volume III contains Critical Energy Infrastructure Information (“CEII”) and is comprised of above-ground facility site plans and acoustical assessment in Exhibit F-I and Exhibits G through G-II.

Volume II is marked “**CONTAINS PRIVILEGED INFORMATION—DO NOT RELEASE**”⁵ and “**CUI//PRIV.**”⁶ Privileged information should be treated as confidential and is for use by Commission Staff only and not to be released to the public. Volume III is marked “**CONTAINS CRITICAL ENERGY INFRASTRUCTURE INFORMATION—DO NOT RELEASE**”⁷ and “**CUI//CEII**”⁸ and should be treated as confidential pursuant to Order Nos. 630, et seq. and is for use by the Commission Staff only and not to be released to the public.⁹ Rio Bravo requests that this information be treated as CEII for five years, unless re-designated by the CEII Coordinator.

Questions pertaining to confidential information may be submitted to:

Jennifer Rinker
Associate General Counsel
Rio Bravo Pipeline Company, LLC
P.O. Box 1642
Houston, Texas 77251-1642
Phone: (713) 627-5221

⁵ 18 C.F.R. §§ 380.12, 388.112 (2019).

⁶ See Notice of Document Labelling Guidance for Documents Submitted to or Filed with the Commission or Commission Staff, Accession No. 20170414-3009 (Apr. 14, 2017).

⁷ 18 C.F.R. § 388.113 (2019).

⁸ See Notice of Document Labelling Guidance for Documents Submitted to or Filed with the Commission or Commission Staff, Accession No. 20170414-3009 (Apr. 14, 2017).

⁹ *Critical Energy Infrastructure Information*, Order No. 630, FERC Stats. & Regs. Regulations Preambles ¶ 31,140 (2003), 68 Fed. Reg. 9857 (Mar. 3, 2003), *order on reh’g*, Order No. 630-A, 104 FERC ¶ 61,106 (2003), 68 Fed. Reg. 46,456 (Aug. 6, 2003).

UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY
FEDERAL ENERGY REGULATORY COMMISSION

IN THE MATTER OF)
)
Rio Bravo Pipeline Company, LLC) Docket No. CP20-481
)

**Protest and Motion to Intervene of Sierra Club,
Vecinos para el Bienestar de la Comunidad Costera,
Shrimpers and Fishermen of the RGV,
the Carrizo Comecrudo Tribe of Texas, and Save RGV from LNG**

In *Rio Grande LNG, LLC & Rio Bravo Pipeline Company, LLC*, CP16-454 & CP 16-455, 169 FERC ¶ 61,131 (Nov. 22, 2019), *reh'g denied* 170 FERC ¶ 61,046 (Jan. 23, 2020), FERC authorized construction and operation of the Rio Bravo Pipeline system. Rio Bravo now seeks to amend this authorization in a new docket, CP20-481. Rio Bravo seeks:

a reduction in the total number of compressor stations, the elimination of certain measurement facilities, a change to the maximum allowable operating pressure of the pipelines and header system, and an increase in the diameter of the first pipeline from 42 inches to 48 inches, resulting in an increase in the mainline design capacity on the first pipeline from 2.25 Bcf/d to 2.6 Bcf/d.

Amendment Application at 1.

Sierra Club, Vecinos para el Bienestar de la Comunidad Costera, Shrimpers and Fishermen of the RGV, the Carrizo Comecrudo Tribe of Texas, and Save RGV from LNG (“Intervenors”), hereby move to intervene in this docket, CP20-481, and protest this proposed amendment. Intervenors and their members will be harmed by construction and operation of the pipeline and by construction and operation of the associated Rio Grande LNG terminal. We support rigorous exploration and adoption of alternatives that reduce impacts to air, wetlands, and other environmental resources. *See, e.g.,* Sierra Club *et al.*, Comments on Draft EIS, CP16-454, Accession No. 20181203-5319, at 55-56 (arguing that placing a compressor station in wetlands at the terminal site is unnecessary and unjustified), Sierra Club *et al.*, Request for Rehearing, CP16-454, Accession No. 20191226-5182, at 15-18 (same). However, we protest the application for

amendment filed in this new docket, CP20-481. FERC lacks jurisdiction to modify the Rio Bravo certificate order, because that order is presently subject to litigation in *Vecinos para el Bienestar et al. v. FERC*, D.C. Circuit Case No. 20-1045. *See* 15 U.S.C. § 717r(a). Even if FERC were to acquire jurisdiction to consider this application, Rio Bravo has not justified the increase in pipeline diameter and operating pressure. The increase in pipeline diameter will have adverse environmental impacts not addressed in Rio Bravo's application. In addition, as intervenors previously explained, the Rio Bravo pipeline system already has significantly higher capacity than is necessary to achieve its stated purpose of supplying the Rio Grande LNG terminal. Although Rio Bravo does not presently seek authorization to increase pipeline throughput beyond the 4.5 bcf/d already authorized, the changes proposed here appear to have the effect of either increasing the project's technical capacity, or laying the foundation for a future increase. Such an increase is unjustified.

I. Motion to Intervene

FERC regulations permit intervention upon a showing that "the movant has or represents an interest which may be directly affected by the outcome of the proceeding" or that "the movant's intervention is in the public interest." FERC Rule 214, 18 C.F.R. § 385.214(b)(2). These low hurdles rightly reflect FERC's Natural Gas Act responsibilities: FERC is seeking to determine the public interest on matters which have weighty implications for the country, and so naturally benefits from hearing views from many perspectives as it weighs export applications. Movant-intervenors here easily satisfy both of these alternative standards for intervention.

A. Sierra Club

Sierra Club and its members have interests that will be affected by the Rio Bravo pipeline, and by the proposed amendment specifically. Sierra Club members will be impacted on local, regional, and national scales.

Sierra Club has 176 members in Cameron County, Texas, at the pipeline terminus and site of the Rio Grande LNG terminal. More broadly, Sierra Club has 25,415 members in Texas, many of whom recreate in areas impacted by the pipeline and terminal. These members will be affected by, among other things:

- Air pollution emitted by pipeline construction, pipeline operating emissions from compressor stations and other sources, and air pollution from the gas liquefaction and

export activities that depend upon the pipeline.

- Impacts of the pipeline on wildlife in the region, including endangered ocelots, birds, fish, etc.
- Impacts of the pipeline on wetlands, including substantial disruption of wetlands during project construction near the Bahia Grande unit of the Laguna Atascosa National Wildlife Refuge.
- Noise, light, and aesthetic impacts from pipeline construction and operation.

Sierra Club members will be impacted by the amendment specifically because they will benefit from the reduction in land impacts, including impacts to wetlands, resulting from omission of compressor stations two and three, and from the overall reduction in air pollution. On the other hand, Sierra Club members may be harmed by the proposed increase in pipeline diameter. Potential impacts of this increase include an increase in excavated trench and spoil volume, potentially increasing construction duration or intensity, hydrologic impacts, risk of sediment control failure, and other impacts.

Sierra Club members throughout Texas and the nation will also be impacted by the gas production needed to supply the pipeline and gas terminal. As explained below, Sierra Club and its members are concerned that enlarging the diameter of pipeline 1 is a step toward future increases in pipeline capacity, which would enable an increase in LNG output, production of feed gas, and end use of gas, all of which will increase emissions of ozone precursors, greenhouse gases, and other pollutants.

Separately, the interests the Sierra Club represents here are shared by the public at large, such that Sierra Club's intervention is in the public interest as provided by 18 C.F.R. § 385.314(b)(2)(iii).

Sierra Club has demonstrated the vitality of these interests in many ways. Sierra Club runs national advocacy and organizing campaigns dedicated to reducing American dependence on fossil fuels, including natural gas, and to protecting public health. These campaigns, including its Beyond Coal and Dirty Fuels campaigns, are dedicated to promoting a swift transition away from fossil fuels and towards reducing global greenhouse gas emissions. Sierra Club has also extensively acted to advance these interests with respect to the Rio Bravo Pipeline and Rio Grande LNG projects in particular, and with regard to neighboring LNG export proposals.

Sierra Club therefore satisfies the conditions for intervention both as representatives of interested consumers and because their participation is in the public interest. See 15 U.S.C. § 717n(e); 18 C.F.R. § 385.214(b)(2).

Pursuant to 18 C.F.R. § 385.203(b)(1)-(2), Sierra Club states that the exact name of the movant is the Sierra Club, and the movant's principal place of business is 2101 Webster Street, Suite 1300, Oakland, CA 94612.

Pursuant to 18 C.F.R. § 385.203(b)(3), Sierra Club identifies the following persons for service of correspondence and communications regarding this application:

Nathan Matthews
Senior Attorney
Sierra Club
2101 Webster Street, Suite 1300
Oakland, CA 94612
(415) 977-5695 (tel)

Meral Basit
Legal Assistant
Sierra Club
2101 Webster Street, Suite 1300
Oakland, CA 94612
(415) 977-5779 (tel)

B. Vecinos para el Bienestar de la Comunidad Costera

Vecinos para el Bienestar de la Comunidad Costera ("Vecinos") is a Texas unincorporated non-profit association comprised of residents of Laguna Heights, Texas and nearby areas that seeks to protect and improve the health, standard of living, and economic development of the coastal community in the Rio Grande Valley of South Texas. The members of Vecinos are largely low-income, Hispanic families whose livelihoods depend on the continued vibrancy of existing local industries, such as fishing and hospitality.

The end of the pipeline and terminal lie within three to four miles of the residences of Vecinos' members. Several members attend school approximately three miles from the terminal site. Vecinos' members work or travel to work within three miles of the terminal site, including in the fishing and hospitality industries.

Vecinos' members will be directly and materially affected by the proposed project based on their close proximity to end of the pipeline and the LNG export terminal, and the impacts the pipeline and terminal will have on their livelihoods, health, and properties. Vecinos has concerns about the location, size, and safety of the pipeline, among other concerns. Vecinos is also concerned about the environmental and health impacts related to construction and the operation of

the pipeline, specifically the air pollution created by the pipeline and the liquefaction and export activities that depend upon the pipeline, the impacts of the pipeline on wildlife and wetlands in the area, and the safety risk from spills, fires, explosions, or other accidents. Within this group there are members who have health conditions, such as asthma, that make them especially sensitive to air pollution impacts. The pipeline construction and operation will add an aesthetically unattractive feature to an existing natural viewscape that members enjoy and will also emit additional light and noise that will impact members.

It is believed that these industries that members work in will be negatively impacted by the construction and operation of the proposed pipeline and terminal due to a reduction in tourism and the marine impacts from the facility, including wetlands impacts. These impacts are particularly harmful to low-income families such as Vecinos' members who already face barriers to economic opportunity and health services.

Vecinos members will be impacted by the amendment specifically for the reasons stated by Sierra Club, above.

Vecinos therefore satisfies the conditions for intervention both as representatives of interested consumers and because their participation is in the public interest. See 15 U.S.C. § 717n(e); 18 C.F.R. § 385.214(b)(2).

Vecinos identifies the following persons for service of correspondence and communications regarding this application:

Kathryn Youker
Texas RioGrande Legal Aid
1206 Van Buren St.
Brownsville, TX 78520
(956) 982-5540 (tel)
kyouker@trla.org

Erin Gaines
Texas RioGrande Legal Aid
4920 N. I-35
Austin, TX 78751
(512) 374-2739 (tel)
egaines@trla.org

C. Shrimpers and Fishermen of the RGV

Shrimpers and Fishermen of the RGV ("Shrimpers") is a Texas unincorporated nonprofit association of individuals who live, work, and recreate around the Brownsville Ship Channel. Some members of the group are commercial and recreational fishermen who fish in the Ship Channel close to the proposed facility and rely on that fishing for their livelihood and/or food. The mission of the Shrimpers group is: "to form a representation of individuals that depend on the area

Protest and Motion to Intervene in CP20-481 of Sierra Club, Vecinos para el Bienestar de la Comunidad Costera, Shrimpers and Fishermen of the RGV, the Carrizo Comecrudo Tribe of Texas, and Save RGV from LNG Page 5

of the Brownsville Ship Channel for our livelihood in regards to our income or for our source of rejuvenation in nature. We unite with Christ to serve as stewards of the blessings of the use and enjoyment of the Brownsville Ship Channel area. We intend to peacefully express our concern and spread the word in the community when our waters and our land is in danger. We will continue to unify and look for innovative solutions to keep our area healthy and thriving.”

The end of the pipeline and terminal lie next to the Brownsville Ship Channel, where some Shrimpers members fish, and within 5 miles of where other Shrimpers members work at the Shrimp Outlet in the shrimping and fishing industries.

Shrimpers’ members will be directly and materially affected by the proposed project based on their close proximity to end of the pipeline and the LNG export terminal and the impacts the pipeline and terminal will have on their livelihoods, health, and properties. Shrimpers has concerns about the location, size, and safety of the pipeline, among other concerns. Shrimpers is also concerned about the environmental and health impacts related to construction and the operation of the pipeline, specifically the air pollution created by the pipeline and the liquefaction and export activities that depend upon the pipeline, the impacts of the pipeline on wildlife and wetlands in the area, and the safety risk from spills, fires, explosions, or other accidents. The pipeline construction and operation will add an aesthetically unattractive feature to an existing natural viewscape that members enjoy and will also emit additional light and noise that will impact members.

It is believed that the fishing industry and related retail businesses that members work in will be negatively impacted by the construction and operation of the proposed pipeline and terminal due to a reduction in tourism and the marine impacts from the facility, including wetlands and safety impacts. These impacts are particularly harmful to low-income families such as Shrimpers’ members who already face barriers to economic opportunity and health services.

Shrimpers members will be impacted by the amendment specifically for the reasons stated by Sierra Club, above.

Shrimpers therefore satisfies the conditions for intervention both as representatives of interested consumers and because their participation is in the public interest. See 15 U.S.C. § 717n(e); 18 C.F.R. § 385.214(b)(2).

Shrimpers identifies the following persons for service of correspondence and communications regarding this application:

Kathryn Youker
Texas RioGrande Legal Aid
1206 Van Buren St.
Brownsville, TX 78520
(956) 982-5540 (tel)
kyouker@trla.org

Erin Gaines
Texas RioGrande Legal Aid
4920 N. I-35
Austin, TX 78751
(512) 374-2739 (tel)
egaines@trla.org

D. Carrizo Comecrudo Tribe of Texas

Rio Bravo Pipeline will impact Tribal Lands by disrupting burial and village sites. These areas along the route are vital to the Carrizo Comecrudo People in protecting their Lifeways and must be left intact, unmolested, and not looted. This pipeline will also affect the natural habitat of many sacred species that are sacred to the Tribe and must be protected. By not protecting these sites, oil & gas companies are not diligent in following laws regarding Native Artifact and Remains. The Carrizo Comecrudo Tribe of Texas is original to these lands and has not been contacted or informed when their sites are looted. This act is a threat to the Tribe, and these behaviors perpetuate the ongoing ethnic cleansing and erasure. The Tribe therefore satisfies the standards for intervention under 18 C.F.R. § 385.214(b)(2).

Pursuant to 18 C.F.R. § 385.203(b)(3), the Carrizo Comecrudo Tribe of Texas identifies the following persons for service of correspondence and communications regarding this application

Juan Mancias
Tribal Chairman
1250 Romer Ln
Floresville Tx 78114
830-391-7992
onebigjuan@gmail.com

Christa Mancias
Tribal Secretary
1250 Romer Ln
Floresville Tx 78114
832-315-1881
Chrissysontirim26@gmail.com

E. SaveRGVfromLNG

SaveRGVfromLNG and its members will be impacted by the Rio Bravo pipeline and by the proposed amendment. SaveRGVfromLNG is based in Cameron County, Texas, where the pipeline will be sited. Its members will be affected by, among other things:

- Impacts on wildlife in the region, including endangered ocelots, jaguarundi, and other

species;

- Air pollution emitted by the pipeline construction, pipeline operating emissions, and air pollution from the facilities that depend on the pipeline;
- Impacts on the ability to use waters near the project for fishing, recreation, and other purposes;
- Noise and light from the pipeline construction;
- Economic impacts to tourism resulting from the pipeline construction;
- Risk of fire, explosion, or other accident at the project site;
- Impacts on local wetlands in or around the project site;
- Environmental impacts of additional gas production facilitated by the pipeline and related facilities.

The interests that SaveRGVfromLNG represent here, including environmental, aesthetic, and economic interests, are shared by the public at large, such that the group's intervention is in the public interest as provided by 18 C.F.R. § 385.314(b)(2)(iii). The group was formed to comment on and oppose the development of LNG facilities and related infrastructure in the Rio Grande Valley region, to organize with the community regarding LNG development and associated impacts in the region, and to engage in efforts to protect public health, the environment, and local tourism from impacts related to LNG facilities.

Pursuant to 18 C.F.R. § 385.203(b)(1)-(2), SaveRGVfromLNG states that the name of the movant is "SaveRGVfromLNG." The location of the group's principal place of business is 48 Golf House Rd., Laguna Vista, TX 78578.

SaveRGVfromLNG identifies the following persons for service of correspondence and communications regarding this application:

Marisa Perales
Frederick, Perales, Allmon & Rockwell, P.C.
1206 San Antonio
Austin, Texas, 78701
512-469-6000
marisa@txenvirolaw.com

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, DC 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DLNG/LNG 1
Rio Grande LNG, LLC
Rio Grande LNG Project
Docket Nos. CP16-454-000

August 13, 2020

VIA Electronic Mail

David Wochner
Counsel for Rio Grande LNG, LLC
K&L Gates LLP
david.wochner@klgates.com

Re: Approval of Design Change Proposals

Dear Mr. Wochner:

I approve Rio Grande LNG, LLC's (RGLNG) April 15, 2020 design change proposals as summarized in Final Design Supplement 1 of Implementation Plan Volume 6, and supplemented on May 11, 2020, May 20, 2020, June 22, 2020, June 26, 2020, July 1, 2020, July 14, 2020, and August 12, 2020, including the following:

- reducing the number of liquefaction trains from six (6) to five (5);
- increasing the liquefaction capacity of the five remaining trains to 5.4 million (metric) tonnes per annum (MTPA) each while keeping the total export capacity of 27 MTPA;
- changing main cryogenic heat exchanger (MCHE) design to support individual train uprates;
- changing from single string to parallel string refrigerant compressors;
- changing the heavies removal system technology; and equipment layout optimizations to support the above design changes.

The information filed is consistent with Environmental Condition 1, 56, 64, and 67 of the Commission's November 22, 2019 *Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act* (Order) in the above-referenced docket. FERC staff analyzed the design documentation provided in the above referenced filing against the original application design documentation. Based upon this review, FERC staff concluded that the risks to public safety with the revised design are similar or less than

JA613

the application design based on the changes to the line sizes, pressures, and flows, change to the composition of the mixed refrigerant system, and change to parallel string compressors despite an increased LNG production for each liquefaction train in the new design relative to the original application design. The new design would also result in a reduction in criteria pollutants and greenhouse gas emissions from the RGLNG Terminal and a shortened construction timeline. Also, the proposed noise levels attributable to the LNG Terminal at the nearest noise receptors and the site boundaries would remain unchanged. Lastly, other resource impacts would also remain unchanged or lessened.

I remind you that RGLNG must comply with all applicable remaining terms and conditions of the above referenced Order, as well as procedures stipulated in your previous filings. Please note that this letter does not grant RGLNG the authority to commence construction of the proposed design changes; rather, this is an approval of the conceptual design changes. FERC staff would require completed final design documents, including a revised hazard analysis, reflecting the above referenced changes for review and approval before authorization for construction will be given. Additional authorizations will be released once RGLNG has demonstrated full compliance with the conditions of the Order. We also note that RGLNG must also comply with any applicable Department of Transportation requirements under 49 CFR 193.

If you have any questions regarding this approval, please contact Brady Dague at (202) 502-6124.

Sincerely,



Andrew Kohout
Director, Division of LNG Facility
Reviews and Inspections

cc: VIA Electronic Mail

Sentho White
Director, PHMSA OPS Engineering and Research
U.S. Department of Transportation
sentho.white@dot.gov

James Urisko
Director, PHMSA OPS Southern Region Office
U.S. Department of Transportation
james.urisko@dot.gov

Mary McDaniel
Director, PHMSA OPS Southwestern Region Office
U.S. Department of Transportation
mary.mcdaniel@dot.gov

**IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

Vecinos para el Bienestar de la Comunidad)
 Costera, Sierra Club, City of Port Isabel,)
 and Save RGV from LNG,)
 Petitioners,)

v.)

FEDERAL ENERGY REGULATORY)
 COMMISSION,)

Respondent.)

No. _____

PETITION FOR REVIEW

Pursuant to Section 19(b) of the Natural Gas Act, 15 U.S.C. § 717r(b), Federal Rule of Appellate Procedure 15, and Circuit Rule 15, Vecinos para el Bienestar de la Comunidad Costera, Sierra Club, the City of Port Isabel, and Save RGV from LGV hereby petition the United States Court of Appeals for the District of Columbia Circuit for review of the following order of the Federal Energy Regulatory Commission (“Commission”):

1. Approval of Design Change Proposals, *Rio Grande LNG, LLC & Rio Bravo Pipeline Company, LLC*, FERC Docket No. CP15-454-000 (Aug. 13, 2020), FERC Accession No. 20200813-3023, available at <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15601471> and attached as Exhibit A.

All of the petitioners were intervenors in the Commission proceedings below.

Petitioners timely filed a request for rehearing of the Order Granting Authorizations on September 8, 2020, which FERC failed to respond to within 30 days. As such, petitioners' request for rehearing was deemed denied by operation of law, as FERC acknowledged in its Notice of Denial of Rehearing by Operation of Law and Providing for further Consideration re Rio Grande LNG, LLC under CP16-454 (Oct. 9, 2020), FERC Accession No. 20201009-3017, available at <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15637994> and attached as Exhibit B. Accordingly, this Court has jurisdiction to review the Approval of Design Change Proposals pursuant to 15 U.S.C. § 717r(b).

This petition for review is timely filed within 60 days of the date the request for rehearing was deemed denied, in accordance with 15 U.S.C. § 717r(b).

Dated: December 7, 2020

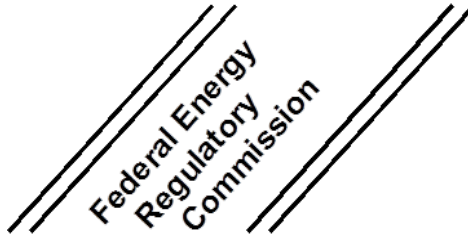
Respectfully submitted,



Nathan Matthews
Sierra Club
2101 Webster Street, Suite 1300
Oakland, CA 94612
(415) 977-5695
nathan.matthews@sierraclub.org
*Attorney for Sierra Club and Save
RGV from LNG*

Jennifer Richards
Texas Riogrande Legal Aid, Inc.
1206 Van Buren
Brownsville, Texas 78520
(956) 982-5540
jrichards@trla.org
*Attorney for Vecinos para el
Bienestar de la Comunidad Costera*

Gilberto Hinojosa
531 E. St. Francis St.
Brownsville, Texas 78520
(956) 544-4218
ghinojosa@ghinojosalaw.net
Attorney for City of Port Isabel



Office of Energy Projects

December 2020

Rio Bravo Pipeline Company, LLC

Docket No. CP20-481-000

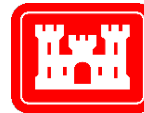
Rio Bravo Pipeline Project Amendment

Environmental Assessment

Cooperating Agencies:



U.S Department
of Transportation



U.S. Army Corps
of Engineers

Washington, DC 20426

JA619

A. PROPOSED ACTION

1. Introduction

The staff of the Federal Energy Regulatory Commission (Commission or FERC) prepared this environmental assessment (EA) to assess the environmental impacts of the amendment to the Rio Bravo Pipeline Project proposed by Rio Bravo Pipeline Company, LLC (RB Pipeline), a subsidiary of Enbridge, Inc. (Enbridge). An *Order Granting Authorizations under Sections 3 and 7 of the Natural Gas Act* (Order) was issued for the Rio Bravo Pipeline Project by the Commission on November 22, 2019.¹ On June 16, 2020, RB Pipeline filed an amendment application with the Commission (Docket No. CP20-481-000) pursuant to Section 7(c) of the Natural Gas Act (NGA) for a Certificate of Public Convenience and Necessity (Certificate). RB Pipeline is seeking authorization to modify its authorized Rio Bravo Pipeline Project to reduce the total number of compressor stations, eliminate certain measurement facilities, decrease the operating condition of its Header System pipeline, increase the length and operating conditions of the Pipelines 1 and 2, and increase the diameter of Pipeline 1. The modified pipeline system facilities are collectively referred to as the Project Amendment.

We² prepared this EA in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations for implementing NEPA (Title 40 of the Code of Federal Regulations Parts 1500-1508 [40 CFR 1500-1508]) and the Commission's implementing regulations under 18 CFR 380. The assessment of environmental impacts is an integral part of the Commission's decision-making process on whether to issue RB Pipeline a Certificate to construct and operate the proposed facilities. The Commission may grant approval if, after consideration of both environmental and non-environmental issues, the Commission finds that the Project Amendment is in the public convenience and necessity. As such, we prepared this EA to assess the environmental impacts that would likely occur as a result of construction of the Project Amendment. Our principal purposes in preparing this EA are to:

- identify and assess potential impacts on the natural and human environment that would result from the implementation of the proposed action;
- assess reasonable alternatives to the proposed action that would avoid or minimize adverse effects to the environment;
- identify and recommend specific mitigation measures, as necessary, to minimize environmental impacts; and
- facilitate public involvement in the environmental review process.

RB Pipeline requested a Certificate by December 17, 2020, in order to complete the Project Amendment facilities and be prepared to commence service in accordance with the timing and shipping needs to Rio Grande LNG, LLC's Rio Grande liquefied natural gas (LNG) Terminal in Cameron County, Texas.

¹ The Commission's November 22, 2019 Order is available on FERC's eLibrary website (see accession number 20191122-3046).

² "We," "us," and "our" refers to environmental staff of the Commission's Office of Energy Projects.

2. Project Purpose and Need

Under Section 7(c) of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate to construct and operate them. Several comment letters were received regarding whether a Certificate should be granted for the Project Amendment. This determination is not made in the EA; rather, the Commission will make that decision based on economic issues, including need, and environmental impacts.

On November 22, 2019, the Commission issued a joint Order to RB Pipeline and Rio Grande LNG, LLC for authorization to construct the Rio Grande LNG Project, which requires the natural gas provided by RB Pipeline to operate the Rio Grande LNG Terminal. The original Rio Bravo Pipeline Project application was filed at FERC under Docket No. CP16-455-000, and the Rio Grande LNG Project was filed under Docket No. CP16-454-000. RB Pipeline states it has reevaluated the approved project facilities and now proposes certain modifications (which are more specifically described in section A.5, below) to provide flexibility and efficiency in satisfying the requirements of the natural gas shipper supplying natural gas to the Rio Grande LNG Terminal.

Although the capacity of Pipeline 1 would increase as a result of the change in pipeline diameter, constructing and operating the Project Amendment would not result in a change to the total transmission capacity (4.5 billion cubic feet per day [Bcf/d]) approved by the Commission for the Rio Bravo Pipeline Project in its November 22, 2019 Order, as the capacity of Pipeline 2 would be equally decreased.

3. Scope of this Environmental Assessment

The topics addressed in section B of this EA include geology and soils; groundwater, surface water, and wetlands; aquatic resources, vegetation, wildlife, and special status species; land use, recreation, and visual resources; cultural resources; air quality and noise; reliability and safety; and cumulative impacts. The EA describes the affected environment as it currently exists, discusses the environmental consequences of the proposed Project Amendment, identifies measures proposed by RB Pipeline to reduce impacts, and presents our additional recommended mitigation measures, which are summarized in section D. This EA supplements the Commission staff's April 26, 2019 final environmental impact statement (April 2019 FEIS)³ for the Rio Bravo Pipeline Project and the Rio Grande LNG Project, and will not discuss the environmental impacts related to the authorized Rio Grande LNG Terminal, as the impacts of the terminal have been disclosed in the April 2019 FEIS and in the November 22, 2019 Commission Order.⁴ Further, the EA clarifies how the proposed Project Amendment changes the April 2019 FEIS

³ Staff's April 26, 2019 final environmental impact statement for the Rio Bravo Pipeline Project and Rio Grande LNG Project can be found on FERC's eLibrary website (see accession number 20190426-3033).

⁴ On August 13, 2020, staff issued, by Delegated Order, an approval of a design change at the Rio Grande LNG Terminal (*rehearing pending*). Design changes include reducing the number of liquefaction trains from six to 5; increasing the liquefaction capacity of the five remaining trains while keeping the total export capacity the same; and other design changes to ancillary facilities within the LNG Terminal.

analysis of the Rio Bravo Pipeline Project. Many comment letters requested an environmental impact statement be prepared for Project Amendment. However, the scope of Project Amendment is limited to the RB Pipeline modifications, and because this EA will not discuss the environmental impacts related to the already authorized Rio Bravo Pipeline Project and Rio Grande LNG Project, an environmental impact statement was not warranted.

As the lead federal agency for the NEPA review of the Project Amendment, FERC is required to comply with Section 7 of the Endangered Species Act, as amended, and Section 106 of the National Historic Preservation Act. These statutes have been considered in the preparation of this EA. In addition to FERC, other federal, state, and local agencies may use this EA in approving or issuing any authorizations required for all or part of the proposed Project Amendment. Permits, approvals, and consultations for the Project Amendment are discussed in section A.10 of this EA.

The U.S. Army Corps of Engineers (USACE) is a cooperating agency because it has jurisdiction under Section 404 of the Clean Water Act. The U.S. Department of Transportation's (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) is also a cooperating agency because of that agency's expertise on pipeline safety and design requirements.

4. Public Review and Comment

On July 28, 2020, the Commission issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Rio Bravo Pipeline Project Amendment and Request for Comments on Environmental Issues* (NOI). The NOI was mailed to affected landowners (as defined in the Commission's regulations); federal, state, and local officials; Native American groups; agency representatives; environmental and public interest groups; and local libraries and newspapers.

In response to the NOI, the Commission received 960 comment letters from interested public, local non-governmental groups, the City of South Padre Island, Texas Parks and Wildlife Department (TPWD), U.S. Fish and Wildlife Service (FWS), Texas State Historic Preservation Office (TX SHPO), and the U.S. Environmental Protection Agency, Region 6 (EPA). Many letters were received requesting a formal public scoping meeting for the Project Amendment. Staff considered the NOI issued to request comments as sufficient and commensurate for the limited scope of the proposed Project Amendment; therefore, a public scoping meeting was not scheduled. The interested public and local non-governmental groups provided comments in response to the Notice of Application and the NOI largely related to the authorized RB Pipeline Project and Rio Grande LNG Project, which are not being re-assessed by staff or the Commission and are outside of the scope of the environmental analysis for the Project Amendment facilities. This EA addresses all substantive comments related to the Project Amendment, which are summarized in table 1, along with the EA section that addresses each topic. Issues identified that are not considered environmental considerations or are outside the scope of the EA process are summarized in table 2 and are not addressed further in this EA.

RB Pipeline has outlined in its permit applications the methods and measures by which it would comply with the requirements of each applicable TCEQ air quality regulation. It is expected that the TCEQ would include conditions in the permit issued to RB Pipeline for the modified Compressor Station 1 to ensure compliance with these regulations.

8.2 Impacts and Mitigation

Construction

During construction, a reduction in ambient air quality would result from emissions and fugitive dust generated by construction equipment. Fugitive dust and other emissions from construction activities generally do not result in a significant increase in regional pollutant levels, although local pollutant levels could intermittently increase during the lengthy construction period. Air pollutant emissions during construction of the Project Amendment facilities would result from the operation of construction vehicles, and vehicles driven by construction workers commuting to and from work sites.

During construction of the Project Amendment, GHGs would be emitted from various types of construction equipment and vehicles (e.g., cranes, trenching machines, bulldozers, excavators, backhoes, haul trucks, construction worker commuter vehicles, etc.). Emissions of GHGs are typically expressed in terms of CO₂e.

The increase in diameter of Pipeline 1 would not result in additional construction emissions beyond the emission detailed in table 4.11.1-14 of the April 2019 FEIS. The construction emissions associated with Compressor Station 2 and Booster Stations 1 and 2, as detailed in table 4.11.1-15 of the April 2019 FEIS, would be avoided as the Project Amendment would eliminate these facilities. Construction emissions would also be avoided due to elimination of Compressor Station 3; however, construction of the meter and other ancillary facilities on the Compressor Station 3 site within the LNG Terminal would still occur, and the associated construction emissions remain unchanged from the estimates presented in table 4.11.1-4 of the April 2019 FEIS. Construction emissions for the modified Compressor Station 1 are estimated to remain unchanged from the estimates presented in table 4.11.1-15 of the April 2019 FEIS, also shown below.

Different construction emissions would occur at the modified Compressor Station 1 as a result of the Project Amendment. A summary of the estimated construction emissions from the Project Amendment is presented in table 4.

Table 4 Estimated Construction Emissions for the Project Amendment (tpy) ^a								
Facility and Year	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}	VOC	Total HAPs	CO _{2e}
Compressor Station 1								
Year 1	1.3	10.3	<0.1	3.8	0.4	0.3	<0.1	1,371.5
Year 2	0.1	0.7	<0.1	0.1	<0.1	<0.1	<0.1	114.8
Year 3	0.7	6.5	<0.1	0.4	<0.1	<0.1	<0.1	933.9
Year 4	0.7	5.8	<0.1	1.9	0.2	<0.1	<0.1	831.5
Year 5	0.4	4.4	<0.1	0.7	<0.1	<0.1	<0.1	642.8
^a Emission estimates include construction emissions from on- and off-road vehicle activity, truck deliveries, vessel activity, worker commutes, and fugitive dust.								

In its comment letter, EPA noted that the agency responsible for the Project Amendment should include a Construction Emission Mitigation Plan and adopt this plan in its Finding of No Significant Impact. To minimize construction air emissions, RB Pipeline would use the most fuel-efficient construction equipment available and would use buses where feasible to minimize emissions from worker commutes. Further, RB Pipeline would use recent models of construction equipment, conduct regular inspections and emissions testing of construction vehicles, and limit idling of heavy equipment to less than 5 minutes to the extent practicable.

To minimize fugitive dust emissions associated with construction of the pipeline facilities, RB Pipeline would implement the measures described in its Fugitive Dust Control Plan approved for the authorized Rio Bravo Pipeline Project. Fugitive dust emissions would occur during the construction period and would subside once construction activities for any given Project Amendment component are complete. With the implementation of the measures in the Fugitive Dust Control Plan, we have determined that fugitive dust emissions associated with construction of the Project Amendment are not expected to contribute to degradation of the NAAQS. While elevated emissions may occur near construction areas, impacts would be short-term and minor. We find that RB Pipeline's proposed construction emission mitigation for the Project Amendment addresses the EPA's recommendation.

Operation

Fugitive emissions in the form of minor leaks from flanges, valves, and connectors could occur along the length of the pipeline route during operation. Although the length of the pipelines per the Project Amendment is slightly increased, the emissions estimate and anticipated impact of the emissions from the pipeline operation would remain the same as detailed in the April 2019 FEIS. At full build-out, the Project Amendment pipeline system would emit 2.7 tpy of VOC and 337.6 tpy of CO_{2e}. Emissions from the pipelines would be minor and dispersed over the entirety of the pipeline length.

The authorized Rio Bravo Pipeline Project configuration at Compressor Station 1 consists of six 30,000-hp natural gas-driven turbines, two natural gas-fired backup generators, and other ancillary facilities. The modified Compressor Station 1 proposed in the Project Amendment

categories. The data nonetheless indicate a low risk of death due to incidents involving natural gas transmission pipelines compared to the other categories. Furthermore, the fatality rate is much lower than the fatalities from natural hazards such as lightning, tornadoes, or floods.

The available data show that natural gas transmission pipelines continue to be a safe, reliable means of energy transportation. From 1996 to 2015, there were an average of 65.4 significant incidents, 9.1 injuries, and 2.3 fatalities per year. The number of significant incidents over the more than 303,000 miles of natural gas transmission lines indicates the risk is low for an incident at any given location. While the data indicate that the operation of the RB Pipeline would represent a slight increase in risk to the safety of the nearby public, that the risk would be considered low.

Table 10 Nationwide Accidental Deaths ^a	
Type of Accident	Annual No. of Deaths
Motor vehicle ^a	35,369
Poisoning ^a	38,851
Falls ^a	30,208
Drowning ^a	3,391
Fire, smoke inhalation, burns ^a	2,760
Floods ^b	81
Tornado ^b	72
Lightning ^b	49
Hurricane ^b	47
Natural gas distribution lines ^c	13
Natural gas transmission pipelines ^c	2
^a Accident data presented for motor vehicle, poisoning, falls, drowning, fire, smoke inhalation, and burns represent the annual accidental deaths recorded in 2013 (Centers for Disease Control 2013). ^b NOAA National Weather Service, Office of Climate, Water and Weather Services, 30-year average (1985-2014) (NOAA 2015). ^c Accident data presented for natural gas distribution lines and transmission pipelines represent the 20-year average between 1996 and 2015 (PHMSA 2016b).	

11. Cumulative Impacts and Climate Change

11.1 Cumulative Impacts

In accordance with NEPA and with FERC policy, we identified other actions in the vicinity of the project facilities and evaluated the potential for a cumulative impact on the environment. As defined by the CEQ, a cumulative effect is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of the agency or party undertaking such other actions. Cumulative impacts can result from individually minor, but collectively significant actions, taking place over time.

As described in section B of this EA, constructing and operating the Project Amendment would temporarily and permanently impact the environment. However, the Project Amendment would not result in additional impacts on resources beyond what was described in the April 2019 FEIS, with the exception of air quality impacts due to the modified Compressor Station 1. Thus, the proposed modified Compressor Station 1 could contribute to cumulative impacts on local and/or regional air quality. Cumulative impacts related to other resource areas were not evaluated, due to there being no additional impacts (or, in many cases, fewer impacts) associated with the Project Amendment as compared to the impacts already assessed in the April 2019 FEIS.

To avoid unnecessary discussions of insignificant impacts and projects, and to adequately address and accomplish the purposes of this analysis, an action must first meet the following three criteria to be included in the cumulative analysis:

- affects a resource also potentially affected by the project;
- causes this impact within all, or part of, the project area defined by the resource-specific geographic scope; and
- causes this impact within all, or part of, the time span of the proposed project's estimated impacts.

The resource-specific geographic boundary for air quality is 0.5 mile of the proposed modified Compressor Station 1 for construction-related cumulative impacts and within 31 miles (or 50 kilometers) of the modified station for operation-related cumulative impacts. Actions outside of this defined boundary were not evaluated because their potential to contribute to a cumulative impact diminishes with increasing distance from the Project Amendment. In addition to the geographic scope, the temporal relationship between the Project Amendment and other activities in the areas was considered.

We considered past, present, and reasonably foreseeable future projects in the geographic boundary of modified Compressor Station 1. Table 11 identifies past and present projects or actions that occur within the geographic scope for air quality for the modified Compressor Station 1; no reasonably foreseeable future projects were identified beyond what was described in the April 2019 FEIS. Past and present projects were identified specific to the Project Amendment, not previously discussed in the April 2019 FEIS. These projects were identified through RB Pipeline's review of TCEQ data.

Table 11
Past and Present Projects Considered in the Cumulative Impacts Analysis
for the Modified Compressor Station 1

Project Proponent	Project Name	Project Description	County	Estimated Construction Timeframe/ Operating Status	Distance from Project
City of Alice	Trench Burner	Authorize a trench burner for the City of Alice	Jim Wells	Permit issued, construction status unknown	< 10 kilometers
DCP Operating Company, LP	Los Olmos Compressor Station	Add three produced water/condensate storage tanks and associated truck loading, revise three existing lube oil tanks, revise two engine VOC emissions.	Jim Wells	Operational, permit issued July 8, 2019	< 10 kilometers
ETC Texas Pipeline, Ltd	King Ranch Gas Plant	Add Thermal Oxidizer	Kleberg	Operational, permit issued April 13, 2020	< 10 kilometers
City of Kingsville	Solid Waste Management Trench Burner	Air Curtain Incinerator General Operating Permit	Kleberg	Operational, permit issued September 27, 2019	< 10 kilometers
EOG Resources, Inc.	Permit Renewal	TCB Central Tank Battery	Kleberg	Operational, permit issued January 9, 2020	< 10 kilometers
King Ranch, Inc.	Cotton Gin	Replacement of cyclones, installation of mote collector, add a fan and cyclone, update grin stand representation.	Kleberg	Operational, permit issued May 8, 2020	< 10 kilometers

Construction of the modified Compressor Station 1 would involve the use of heavy equipment that would generate air emissions (including fugitive dust). The majority of these impacts would be temporary and limited to the duration of the construction period. Of the projects listed in table 11, the trench burner for the City of Alice is the only project that could be under construction at the same time as the modified Compressor Station 1. While construction emissions estimates from the trench burner project is not available, based on the intermittent and short-term nature of construction, this project would have a minor impact on cumulative air emissions when considered with the proposed modified Compressor Station 1.

Concurrent operation of the modified Compressor Station 1 and the other projects in table 11 could result in a cumulative increase in combustion and fugitive emissions. Compressor Station 1 would emit NO_x, CO, SO₂, PM, VOC, HAPs, and GHG emissions; however, the station would not trigger PSD major source permitting requirements for any pollutant. Operation of the modified Compressor Station 1 would not cause a NAAQS exceedance, and concurrent operations with the other projects listed in table 11 are not expected to result in a NAAQS exceedance. Therefore, emissions from operation of RB Pipeline's modified Compressor Station 1 is not expected to contribute to a significant cumulative impact on local or regional air quality.

11.2 Climate Change

Climate change is the variation in climate (including temperature, precipitation, humidity, wind, and other meteorological variables) over time, whether due to natural variability, human activities, or a combination of both, and cannot be characterized by an individual event or anomalous weather pattern. For example, a severe drought or abnormally hot summer in a particular region is not a certain indication of climate change. However, a series of severe droughts or hot summers that statistically alter the trend in average precipitation or temperature over decades may indicate climate change. Recent research has begun to attribute certain extreme weather events to climate change (U.S. Global Change Research Program [USGCRP] 2018).

The leading U.S. scientific body on climate change is the USGCRP, composed of representatives from 13 federal departments and agencies.¹² The Global Change Research Act of 1990 requires the USGCRP to submit a report to the President and Congress no less than every four years that “1) integrates, evaluates, and interprets the findings of the Program; 2) analyzes the effects of global change on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity; and 3) analyzes current trends in global change, both human-induced and natural, and projects major trends for the subsequent 25 to 100 years.” These reports describe the state of the science relating to climate change and the effects of climate change on different regions of the United States and on various societal and environmental sectors, such as water resources, agriculture, energy use, and human health.

¹² The USGCRP member agencies are: Department of Agriculture, Department of Commerce, Department of Defense, Department of Energy, Department of Health and Human Services, Department of the Interior, Department of State, Department of Transportation, Environmental Protection Agency, National Aeronautics and Space Administration, National Science Foundation, Smithsonian Institution, and U.S. Agency for International Development.

In 2017 and 2018, the USGCRP issued its *Climate Science Special Report: Fourth National Climate Assessment*, Volumes I and II (Fourth Assessment Report) (USGCRP 2017; and USGCRP 2018, respectively). The Fourth Assessment Report states that climate change has resulted in a wide range of impacts across every region of the country. Those impacts extend beyond atmospheric climate change alone and include changes to water resources, transportation, agriculture, ecosystems, and human health. The United States and the world are warming; global sea level is rising and acidifying; and certain weather events are becoming more frequent and more severe. These changes are driven by accumulation of GHG in the atmosphere through combustion of fossil fuels (coal, petroleum, and natural gas), combined with agriculture, clearing of forests, and other natural sources. These impacts have accelerated throughout the end 20th and into the 21st century (USGCRP 2018).

Climate change is a global phenomenon; however, for this analysis, we will focus on the existing and potential cumulative climate change impacts in the Project Amendment area. The USGCRP's Fourth Assessment Report notes the following observations of environmental impacts are attributed to climate change in the Southern Great Plains and South Texas regions (USGCRP 2017; USGCRP 2018):

- the region has experienced an increase in annual average temperature of 1-2 °F since the early 20th century, with the greatest warming during the winter months;
- over the past 50 years, significant flooding and rainfall events followed drought in approximately one-third of the drought-affected periods in the region when compared against the early part of the 20th century;
- the number of strong (Category 4 and 5) hurricanes has increased since the early 1980s; and
- global sea level rise over the past century averaged approximately eight inches; along the Texas coastline, sea levels have risen 5-17 inches over the past 100 years depending on local topography and subsidence.

The USGCRP's Fourth Assessment Report notes the following projections of climate change impacts in the Project Amendment region with a high or very high level of confidence¹³ (USGCRP 2018):

- annual average temperatures in the Southern Great Plains are projected to increase by 3.6–5.1 °F by the mid-21st century and by 4.4-8.4 °F by the late 21st century, compared to the average for 1976-2005;

¹³ The report authors assessed current scientific understanding of climate change based on available scientific literature. Each "Key Finding" listed in the report is accompanied by a confidence statement indicating the consistency of evidence or the consistency of model projections. A high level of confidence results from "moderate evidence (several sources, some consistency, methods vary and/or documentation limited, etc.), medium consensus." A very high level of confidence results from "strong evidence (established theory, multiple sources, consistent results, well documented and accepted methods, etc.), high consensus."

<https://science2017.globalchange.gov/chapter/front-matter-guide/>.

- the region is projected to experience an additional 30 to 60 days per year above 100 °F than it does currently;
- tropical storms are projected to be fewer in number globally, but stronger in force, exacerbating the loss of barrier islands and coastal habitats;
- southern Texas is projected to see longer dry spells, although the number of days with heavy precipitation is expected to increase by mid-century; longer periods of time between rainfall events may lead to declines in recharge of groundwater, which would likely lead to saltwater intrusion into shallow aquifers and decreased water availability; and
- sea level rise along the western Gulf of Mexico during the remainder of the 21st century is likely to be greater than the projected global average of 1-4 feet or more, which would result in the loss of a large portion of remaining coastal wetlands.

It should be noted that while the impacts described above taken individually may be manageable for certain communities, the impacts of compound extreme events (such as simultaneous heat and drought, wildfires associated with hot and dry conditions, or flooding associated with high precipitation on top of saturated soils) can be greater than the sum of the parts (USGCRP 2018).

The GHG emissions associated with construction and operation of the Project Amendment are described in section B.8. Construction and operation of the Project Amendment would increase the atmospheric concentration of GHGs in combination with past, current, and future emissions from all other sources globally and contribute incrementally to future climate change impacts.

Currently, there is no universally accepted methodology to attribute discrete, quantifiable, physical effects on the environment to Project Amendment's incremental contribution to GHGs. We have looked at atmospheric modeling used by the EPA, National Aeronautics and Space Administration, the Intergovernmental Panel on Climate Change, and others, and we found that these models are not reasonable for project-level analysis for a number of reasons. For example, these global models are not suited to determine the incremental impact of individual projects, due to both scale and overwhelming complexity. We also reviewed simpler models and mathematical techniques to determine global physical effects caused by GHG emissions, such as increases in global atmospheric CO₂ concentrations, atmospheric forcing, or ocean CO₂ absorption. We could not identify a reliable, less complex model for this task and we are not aware of a tool to meaningfully attribute specific increases in global CO₂ concentrations, heat forcing, or similar global impacts to project-specific GHG emissions. Similarly, it is not currently possible to determine localized or regional impacts from GHG emissions from the Project Amendment.

Absent such a method for relating GHG emissions to specific resource impacts, we are not able to assess potential GHG-related impacts attributable to the Project Amendment. Additionally, we have not been able to find any GHG emission reduction goals established either at the federal

level¹⁴ or by the State of Texas. Without either the ability to determine discrete resource impacts or an established target to compare GHG emissions against, we are unable to determine the significance of the Project Amendment's contribution to climate change.

¹⁴ “The national emissions reduction targets expressed in the EPA’s Clean Power Plan were repealed, *Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emissions Guidelines Implementing Regulations*, 84 Fed. Reg. 32,520, 32,522–32 (July 8, 2019), and the targets in the Paris Climate Accord were withdrawn (November 2020).”

174 FERC ¶ 61,048
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: James P. Danly, Chairman;
Neil Chatterjee, Richard Glick,
Allison Clements, and Mark C. Christie.

Rio Grande LNG, LLC

Docket No. CP16-454-002

ORDER ADDRESSING ARGUMENTS RAISED ON REHEARING

(Issued January 19, 2021)

1. On April 15, 2020,¹ Rio Grande LNG, LLC's (Rio Grande) proposed a number of design changes to its proposal to site, construct, and operate a liquefied natural gas (LNG) terminal on the Brownsville Shipping Channel in Cameron County, Texas (Rio Grande LNG Terminal).² On August 13, 2020, Commission staff approved the requests.³ On September 8, 2020, Vecinos para el Bienestar de la Comunidad Costera, Save RGV from LNG, the City of Port Isabel, Cynthia and Gilberto Hinojosa, and Sierra Club (collectively, Sierra Club) filed a timely request for rehearing of the Letter Order.

2. Pursuant to *Allegheny Defense Project v. FERC*,⁴ the rehearing request filed in this proceeding may be deemed denied by operation of law. However, as permitted by section 19(a) of the Natural Gas Act (NGA),⁵ we are modifying the discussion in the

¹ The design change proposals are summarized in Final Design Supplement 1 of Implementation Plan Volume 6, and supplemented on May 11, 2020, May 20, 2020, June 22, 2020, June 26, 2020, July 1, 2020, July 14, 2020, and August 12, 2020.

² *Rio Grande LNG, LLC*, 169 FERC ¶ 61,131 (2019) (Authorization Order), *order on reh'g*, 170 FERC ¶ 61,046 (2020) (Rehearing Order).

³ August 13, 2020 Letter Approving Design Change Proposals from the Director, Division of LNG Facility Reviews and Inspections, Office of Energy Projects (Letter Order).

⁴ 964 F.3d 1 (D.C. Cir. 2020) (en banc).

⁵ 15 U.S.C. § 717r(a) ("Until the record in a proceeding shall have been filed in a court of appeals, as provided in subsection (b), the Commission may at any time, upon reasonable notice and in such manner as it shall deem proper, modify or set aside, in whole or in part, any finding or order made or issued by it under the provisions of this

Letter Order and continue to reach the same result in this proceeding, as discussed below.⁶

I. Background

3. On November 22, 2019, the Commission issued an order pursuant to section 3 of the NGA⁷ and Part 153 of the Commission's regulations⁸ authorizing Rio Grande to site, construct, and operate its Rio Grande LNG Terminal.⁹ Sierra Club, among other petitioners, sought rehearing, which the Commission denied on January 23, 2020.¹⁰ On February 20, 2020, Sierra Club filed a petition for review of the Certificate and Rehearing orders in the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit). The Commission filed its administrative record underlying the Authorization and Rehearing Orders on April 13, 2020.

4. On April 15, 2020,¹¹ Rio Grande requested that the Commission approve a design change in its implementation plan¹² for the Rio Grande LNG Terminal. Of relevance here, Rio Grande proposed to reduce the Rio Grande LNG Terminal's number of liquefaction trains from six to five and optimize parts of the liquefaction design to increase the liquefaction capacity of the five remaining trains from 4.5 million metric

chapter.”).

⁶ *Allegheny Def. Project*, 964 F.3d at 16-17. The Commission is not changing the outcome of the Letter Order. See *Smith Lake Improvement & Stakeholders Ass'n v. FERC*, 809 F.3d 55, 56-57 (D.C. Cir. 2015).

⁷ 15 U.S.C. § 717b.

⁸ 18 C.F.R. pt. 153.

⁹ Authorization Order, 169 FERC ¶ 61,131.

¹⁰ Rehearing Order, 170 FERC ¶ 61,046.

¹¹ Rio Grande further supplemented its request on May 11, 2020, May 20, 2020, June 22, 2020, June 26, 2020, July 1, 2020, July 14, 2020, and August 12, 2020. Letter Order at 1.

¹² Implementation Plans include project details and how the developer will implement the required construction procedures and mitigation measures. Authorization Order, 169 FERC ¶ 61,131 at app., Environmental Condition No. 6.

tons per annum (MTPA) to 5.4 MTPA each, while keeping the total export capacity at 27 MTPA. As discussed in the Letter Order, Commission staff examined the proposed design changes' impacts to public safety and the environment, concluding that the risks to public safety with the revised design are similar or less than the original design, and the changes would provide several environmental advantages over the design approved in the Authorization Order.¹³

II. Discussion

A. The Commission's Authority to Act under Section 19(b) of the Natural Gas Act

5. Sierra Club argues that the Commission lacks subject-matter jurisdiction to consider Rio Grande's design changes and must rescind the Letter Order because petitions for review of the Authorization and Rehearing Orders are pending before the D.C. Circuit and the record has been filed.¹⁴ Sierra Club contends, pursuant to section 19(b) of the NGA, that the Commission retains the power to "modify or set aside" its findings "until the record in a proceeding is filed in a court of appeals," at which point, only that court has jurisdiction to alter the order.¹⁵ Sierra Club argues the Commission had no authority to approve the design changes while the underlying orders await disposition of a pending appeal.¹⁶

6. We disagree that section 19(b) is a jurisdictional bar to approving the design changes. Under section 19(b) of the NGA, once appeal is sought, "such court shall have jurisdiction, which upon the filing of the record with it shall be exclusive, to affirm, modify, or set aside such order in whole or in part."¹⁷ The Authorization Order and subsequent Rehearing Order are final orders, and nothing in section 19(b) prohibits Rio Grande from initiating changes that do not "modify or set aside" findings in those orders

¹³ Letter Order at 1-2 ("The new design would also result in a reduction in criteria pollutants and greenhouse gas emissions from the [] Terminal and a shortened construction timeline. Also, the proposed noise levels attributable to the LNG Terminal at the nearest noise receptors and the site boundaries would remain unchanged. Lastly, other resource impacts would also remain unchanged or lessened.").

¹⁴ Rehearing Request at 2.

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ 15 U.S.C. § 717r(b).

nor does our authorization of such changes impinge on the D.C. Circuit's authority over those orders.

7. Our authorization of the design changes is consistent with the Commission's authority to oversee the construction of authorized projects.¹⁸ Changes to optimize the engineering design of an LNG terminal to make it more economical, efficient, safe, and reliable is often the focus of finalizing an authorized design.¹⁹ Accordingly, the Authorization Order permitted Rio Grande to make design changes post-authorization provided that the changes were consistent with the Commission's determinations in the Authorization Order.²⁰ Rio Grande proposed to change some limited liquefaction equipment and change one of its refrigerants to optimize the overall process design, allowing it to eliminate a liquefaction train without affecting the authorized export capacity. The subject design changes do not substantially alter the project's authorized construction and operations, which have yet to begin, and would provide several environmental advantages over the initial design described in the Authorization Order.²¹

¹⁸ The Commission conditions its LNG authorization orders with the expectation that there will be proposed engineering design changes post-authorization. *See* 15 U.S.C. § 717b(e)(3)(A) (“[T]he Commission may approve an application described in paragraph (2) [for LNG export], in whole or part, with such modifications and upon such terms and conditions as the Commission find¹ necessary or appropriate.”); *see, e.g.*, Authorization Order, 169 FERC ¶ 61,131 at app., Environmental Condition No. 1 (directing Rio Grande to seek authorization from the Commission for any change in the proposed construction procedures and mitigation measures); Environmental Condition No. 56 (directing Rio Grande to file change logs that list and explain any changes made from the front end engineering design provided in Rio Grande's application and filings...).

¹⁹ The Commission routinely receives and considers engineering and design changes proposed pursuant to standard condition 1 of LNG authorization orders. *See, e.g., Corpus Christi Liquefaction, LLC*, Docket No. CP12-507-000, Approval to Remove Train 3 Vapor Fence (May 2, 2018) (delegated order) (approving request to remove certain fencing from the Corpus Christi LNG design); *Elba Liquefaction Company, L.L.C.*, Docket No. CP14-103-000, Approval of the Storm Surge Wall Design Modification, (June 15, 2017) (delegated order) (approving storm surge wall design change); *Sabine Pass Liquefaction, LLC*, Docket No. CP11-72-000, Approval for Facility Modifications and Installation of Structural Steel, (May 24, 2013) (delegated order) (approving several design changes to the Sabine Pass LNG facility).

²⁰ Authorization Order, 169 FERC ¶ 61,131 at app., Environmental Condition Nos. 1, 56.

²¹ *See infra* P 14.

8. Sierra Club does not present any evidence that the approved design change fundamentally alters, modifies, or sets aside the findings in the Authorization and Rehearing Orders. Instead, it cites several cases that it claims support its contention that the Commission cannot act on a design change proposal while an appeal is pending.²² However, none of the cases cited by Sierra Club supports such a prohibition, which would effectively stay projects where appeal is sought by preventing the Commission from allowing minor and routine design and construction changes. Given that the NGA expressly provides that the pendency of an appeal does not automatically operate as a stay of the Commission's order on review, the Commission's approach here reasonably balances the need for ongoing Commission oversight of the construction of the LNG terminal and the reservation of the court's jurisdiction in NGA section 19(b).²³ Moreover, the cases cited by Sierra Club show that, in enacting section 19(b) of the NGA, Congress did not seek to eliminate the Commission's ongoing authority over authorized projects pending appeal.

9. Sierra Club cites *Public Utilities Commission of California v. FERC*, where the Ninth Circuit found that the Commission lacked statutory authority to vacate, or "set aside," several certificate orders while an appeal was pending.²⁴ Here, the Commission has not "set aside" or "modified" the Authorization Order. The findings in that order were based on the then-existing record before the Commission and remain valid. In the Letter Order, the Commission responded to a new design change proposal based upon new information, submitted by Rio Grande pursuant to the terms of the Authorization Order.²⁵ And based upon that new record, the Commission permitted the requested design change. In doing so, the Commission did not alter in any manner the Authorization Order's conclusion that Rio Grande's application to site, construct, and operate its LNG Terminal to export 27 MTPA would not be inconsistent with the public interest; design changes to optimize liquefaction efficiencies do not change this finding, and in no way impedes the court's ability to review the Commission's basis for reaching that finding.²⁶

²² Rehearing Request at 2-4.

²³ See 15 U.S.C. § 717r(c) ("The commencement of proceedings under subsection (b) [judicial review] of this section shall not, unless specifically ordered by the court, operate as a stay of the Commission's order.").

²⁴ 100 F.3d 1451, 1457 (9th Cir. 1996).

²⁵ Letter Order at 1 (noting that design change proposal is "consistent with Environmental Condition 1, 56, 64, and 67 of the" Authorization Order).

²⁶ Authorization Order, 169 FERC ¶ 61,131 at P 22.

10. As the DC Circuit explained in *Alabama Power Co. v. FPC*²⁷ when construing the substantially similar provision in the Federal Power Act, “[t]he statute disables the Commission, while the appeal is pending, from altering its findings.”²⁸ The relevant language in section 19(b) is intended “merely to insure that any question as to the validity or propriety of” an order on appeal is “confined to the jurisdiction of the reviewing court exclusively.”²⁹ Here, the Commission has not altered its findings in the Authorization Order. It has simply responded to a design change proposal based on a new record. We therefore disagree with Sierra Club’s contention that the relevant case law holds that section 19(b) of the NGA prohibits the Commission’s authorization of Rio Grande’s design change.

B. Supplemental Analysis Pursuant to the National Environmental Policy Act

11. Sierra Club argues that the National Environmental Policy Act (NEPA) requires the Commission to prepare a supplemental Environmental Impact Statement (EIS),³⁰ contending that the proposal to omit the sixth train is a “substantial change[] ... relevant to environmental concerns,” and Rio Grande’s determination that it can meet the project purpose of producing 27 MTPA with only five liquefaction trains is “significant” new information relevant to environmental concerns, both of which require preparation of a supplemental EIS.³¹ Sierra Club notes that, in analyzing the proposed project’s environmental impacts, the Commission previously rejected an alternative that would use only five trains, and which would shrink the facility footprint to the minimum size needed to accommodate five trains, because a five train alternative could not meet that project purpose.³² Sierra Club contends that the Commission must now prepare a

²⁷ 511 F.2d 383 (D.C. Cir. 1974).

²⁸ *Id.* at 388. *See also Chamber of Commerce v. SEC*, 443 F.3d at 890, 898 (D.C. Cir. 2006) (rejecting argument that the Securities and Exchange Commission lacked authority to consider modifications of a rule prior to the issuance of the appellate court’s mandate) (*cited in* Rehearing Request at 2-3).

²⁹ *Dyer v. SEC*, 289 F.2d 242, 244 (8th Cir. 1961) (construing virtually identical language of Public Utility Holding Company Act of 1935).

³⁰ Rehearing Request at 3-4.

³¹ *Id.* at 2 (citing 40 C.F.R. § 1502.9(c)(1) (2020); *Alaska Wilderness Recreation & Tourism Ass’n v. Morrison*, 67 F.3d 723, 728-30 (9th Cir. 1995)).

³² *Id.* at 3.

supplemental NEPA document to revisit whether the five train design can accommodate a smaller facility footprint.³³

12. The Council on Environmental Quality's regulations provide that supplemental environmental analysis may be necessary where an agency "makes substantial changes in the proposed action that are relevant to environmental concerns" or where there are "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."³⁴ To warrant supplemental environmental analysis, new information must be sufficient to show that the remaining federal action will affect the environment in a significant manner or to a significant extent not already considered.³⁵ The Commission is not required by NEPA to prepare a supplemental environmental analysis because the design change is not a substantial change to the Commission's NGA section 3 authorization that is relevant to environmental concerns and, as explained in the Letter Order, the design change will not significantly affect the environment.³⁶ Rio Grande proposed to reduce the number of liquefaction trains to be constructed from six to five and change parts of the liquefaction design. These proposals will increase the capacity of the five remaining trains from 4.5 MTPA to 5.4 MTPA each, keeping the total export capacity of 27 MTPA. Based on analysis of the information Rio Grande provided in support of the design change request, Commission staff determined that a supplemental EIS was unnecessary.³⁷ The design changes will reduce permitted air emissions. Specifically, the design change will decrease nitrous oxides, carbon monoxide, particulate matter, volatile organic compound emissions, hazardous air pollutants, and greenhouse gas emissions,³⁸ and will slightly decrease sulfur dioxide and

³³ *Id.*

³⁴ 40 C.F.R. § 1502.9(c)(1).

³⁵ *Marsh v. Or. Nat. Res. Council*, 490 U.S. 360, 374 (1989).

³⁶ Letter Order at 1.

³⁷ July 14, 2020 Rio Grande LNG Response to July 10, 2020, Request for Supplemental Information (providing updated air emissions and noise modeling).

³⁸ *Compare* Final EIS at 4-262 (2,058.6 tons per year (tpy) of nitrous oxides (NO_x), 3,142 tpy of carbon monoxide (CO), 381.8 tpy of Particulate Matter (PM) 10, 381.8 tpy of PM_{2.5}, 604.4 tpy of Volatile Organic Compounds (VOCs), 54.2 tpy of Hazardous Air Pollutants (HAPs), and 8.1 million tpy of Carbon Dioxide equivalents (CO₂e)) *with* July 14, 2020 Rio Grande LNG Response to July 10, 2020, Request for Supplemental Information, at Rio Grande Revised PSD Permit and Table 3-1 (1,112 tpy of NO_x, 1,724 tpy of CO, 258 tpy of PM₁₀, 258 tpy of PM_{2.5}, 482 tpy of VOCs, 38 tpy of HAPs, 6.4 million tpy of CO₂e).

sulfuric acid emissions.³⁹ When these decreased emissions are considered in conjunction with anticipated area emissions, the cumulative air emission impacts would be reduced.⁴⁰ The Letter Order also explained that the new design would not negatively impact noise levels or public safety and would not impact or would lessen impacts to other resources; this includes impacts on endangered species and environmental justice communities referenced in the dissent.⁴¹ Thus, because the design change will not result in significant environmental impacts, the Commission is not required to prepare a supplemental EIS.⁴²

13. Nonetheless, Sierra Club contends that the design change will retain the original project's layout and footprint to preserve space for the sixth train and will negatively impact wetlands, habitat, and other resources as a result.⁴³ Sierra Club claims the Commission should consider the new design changes together with a future sixth train because Rio Grande is laying the "literal foundation" for the sixth train.⁴⁴

14. In fact, Rio Grande is not proposing to make any improvements to the area where the sixth liquefaction train was to be located. Although Rio Grande is maintaining the initial outer fence line of the LNG plant, as a result of the design change, it will no longer develop the area for the sixth liquefaction train near the west end of the terminal. The area for the sixth liquefaction train is approximately 846,000 square feet or

³⁹ Compare Final EIS at 4-262 (30.2 tpy of sulfur dioxide (SO₂) and 2.3 tpy of sulfuric acid (H₂SO₄)) with July 14, 2020 Rio Grande LNG Response to July 10, 2020, Request for Supplemental Information, at Rio Grande Revised PSD Permit and Revised Emissions Summary Table (30.06 tpy of SO₂ and 2.22 tpy of H₂SO₄).

⁴⁰ Decreases in NO_x and VOCs, both ozone precursors, would reduce the Rio Grande terminal's impacts on regional Ozone levels. These large reductions in NO_x and VOCs from the Rio Grande facility would also reduce the cumulative Ozone levels below those identified in the rehearing order.

⁴¹ Letter Order at 2. We note that in order to evaluate Rio Grande's proposed reduction in air quality and noise impacts due to the design change, FERC staff requested that Rio Grande provide documentation. See July 14, 2020 Rio Grande Response to Commission Staff's July 10, 2020, Request for Supplemental Information.

⁴² See *Cal. ex rel. Imperial County Air Pollution Control Dist. v. U.S. Dept. of the Interior*, 767 F.3d 781, 797 (9th Cir. 2014) (noting that the pre-September 14, 2020 CEQ regulations did not dictate the form that an agency must use when deciding whether to prepare a supplemental EIS and courts have endorsed the use of various documents).

⁴³ Rehearing Request at 3-4.

⁴⁴ *Id.* at 4.

approximately twenty acres⁴⁵ and Rio Grande will use this area as a laydown yard to store construction equipment and material during construction.⁴⁶ These activities will temporarily impact vegetation but, contrary to Sierra Club's claim, the area does not contain and, therefore, the activities do not impact, wetlands.⁴⁷ As discussed in the Letter Order, because the fence line will remain the same, there are no greater impacts on habitat or other resources than already authorized, including endangered species.⁴⁸ Thus, because the impacts to the area where the sixth liquefaction train was to be located will be minor, no additional NEPA analysis is necessary.

15. That the Commission previously declined to analyze a five-train design does not support Sierra Club's assertion that a supplemental EIS is now required. As discussed in the Rehearing Order, the Commission does not independently design systems, and, as it did in the certificate proceeding and the Letter Order, reviews the design proposed before us.⁴⁹

16. The dissent contends that the Commission should have treated the design change as an amendment to the Authorization Order⁵⁰ and also conducted a supplemental Environmental Assessment. Rio Grande's design change is consistent with the Commission's NGA section 3 authorization for the Rio Grande LNG Terminal. The dissent contends that an LNG facility's liquefaction process is a "facility's most salient design element," but at the authorization stage, liquefaction facilities are at a preliminary point of design and the Commission anticipated that Rio Grande could propose many design changes to optimize the liquefaction process while maintaining the project's overall capacity within the project's general footprint.⁵¹ Thus, in the Authorization

⁴⁵ See Rio Grande LNG Project Resource Report 1 at RR 1-27 ("Each liquefaction train will have an approximate footprint of 830 feet x 1,020 feet, or roughly 846,000 square feet.").

⁴⁶ July 14, 2020 Rio Grande LNG Response to July 10, 2020, Request for Supplemental Information at 406, Figure 3.

⁴⁷ Compare EIS at 2-3 to 2-4 (Figures 2.1.1-1 and 2.1.1-2) with EIS at 4-58 (Figure 4.4.1-1). See EIS at 4-60 (EIS at table 4.4.2-1, footnote c).

⁴⁸ Letter Order at 2.

⁴⁹ Rehearing Order, 170 FERC ¶ 61,046 at P 25.

⁵⁰ Sierra Club does not raise this issue on rehearing; therefore, it is not preserved for judicial review. See 15 U.S.C. § 717r(b).

⁵¹ The Commission has generally treated design changes that increase capacity or impact resources not considered in the original authorization as requests for amendments.

Order, the Commission permitted Commission staff to consider such changes, as contemplated by the Commission's environmental conditions.⁵² Accordingly, in the Letter Order, Commission staff appropriately determined that Rio Grande's changes to the liquefaction facilities were permitted under the Authorization Order and could be treated as a design change because there were no capacity changes to the facility,⁵³ no additional adverse impacts to public safety, no substantial changes to the plant's footprint, no additional air emission impacts, and no additional adverse impacts to the environment. As is typical practice, Commission staff considered the nature of the proposed design change to determine whether it could have potential impacts that would warrant a formal supplemental environmental review. Given that the proposed alterations would not change total capacity, increase public safety impacts, expand the plant's footprint, increase air emissions, or change any conclusions on the other environmental impacts, staff correctly concluded that no further analysis was required.

See, e.g., Freeport Lng Dev., L.P., 156 FERC ¶ 61,019 (2016) (requesting authorization to increase the LNG terminal's nameplate capacity); *Sabine Pass Liquefaction, LLC*, 146 FERC ¶ 61,117 (2014) (approving requested amendment increasing the LNG terminal's capacity to reflect previously-authorized facilities' capabilities under optimal conditions).

⁵² Authorization Order, 169 FERC ¶ 61,131 at Appendix, Environmental Condition Nos. 1, 6, 56.

⁵³ The dissent contends that Commission completed an Environmental Assessment (EA) in approving an amendment to the Golden Pass LNG Terminal LLC's NGA section 3 authorization despite the lack of any design changes or additional construction. The Commission treated the requested changes there as an amendment requiring an EA because the increase in total export capacity was a change to our original authorization and there was a potential for an increased volume of LNG vessel traffic compared to that previously analyzed for the Golden Pass Export Terminal Project, which could result in additional impacts to endangered and threatened aquatic species. *Golden Pass LNG Terminal LLC*, 174 FERC ¶ 61,053, at P 11 (2021).

The Commission orders:

In response to Sierra Club's request for rehearing, the Letter Order is hereby modified and the result sustained, as discussed in the body of this order.

By the Commission. Commissioner Glick and Commission Clements are dissenting with a joint separate statement attached.

(S E A L)

Kimberly D. Bose,
Secretary.

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Rio Grande LNG, LLC

Docket No. CP16-454-002

(Issued January 19, 2021)

GLICK, Commissioner, and CLEMENTS, Commissioner, *dissenting*:

1. We dissent from today's order because it affirms the Commission's failure to adequately review a significant design change at Rio Grande LNG, LLC's (Rio Grande) liquefied natural gas (LNG) facility. In 2019, the Commission issued Rio Grande a certificate under section 3 of the Natural Gas Act (NGA)¹ for an LNG export facility whose core design centered on six natural gas liquefaction trains with a cumulative export capacity of approximately 27 million tonnes per annum.² Shortly thereafter, Rio Grande proposed to modify its core design by removing one of the six trains and increasing the maximum export capacity on the remaining five trains so that the total export capacity would not change. Commission staff approved the design change via a delegated letter order, rather than through an amendment proceeding.³
2. That approval was flawed for two reasons. First, going from six trains to five while increasing the capacity of the remaining trains by roughly 20% is a significant change that should have required a formal application to amend the certificate. The number of trains at an LNG facility is arguably the facility's most salient design element and should not be changed without the degree of Commission scrutiny and review that accompanies an application to amend the certificate. After all, the Commission has a statutory responsibility to evaluate whether the facility is consistent with the public interest, which it cannot reasonably carry out if it approves sweeping modifications to the facility's design without a full review under section 3.

¹ 15 U.S.C. § 717b.

² *Rio Grande LNG, LLC*, 169 FERC ¶ 61,131 (2019) (Certificate Order); (Glick, Comm'r, dissenting), *order on reh'g*, 170 FERC ¶ 61,046 (2020) (Glick, Comm'r, dissenting).

³ August 13, 2020 Letter Approving Design Change Proposals from the Director, Division of LNG Facility Reviews and Inspections, Office of Energy Projects (Letter Order).

3. The Commission's counterarguments are unpersuasive. It principally contends that it regularly approves design changes at LNG facilities.⁴ Although that is true, the examples it identifies only underscore how anomalous it was to approve a change to the core design of an LNG facility without a formal amendment. For example, the Commission points to instances in which Commission staff approved the removal of fencing around the Corpus Christi LNG facility, the modification to the storm surge wall at the Elba Liquefaction facility, and the installation of structural steel and underground piping at Sabine Pass LNG.⁵ None of those changes modified the core design of an LNG facility and, accordingly, they do not support the proposition that the Commission can approve a modification this significant without requiring a formal amendment to the certificate.

4. The Commission's approach in this order is also inconsistent with how it has handled similar situations at other LNG facilities. For example, in another order issued today, the Commission is approving an amendment to the Golden Pass LNG Terminal LLC's section 3 certificate to increase its total export capacity.⁶ Although that amendment requires no design changes or additional construction, the Commission still noticed the proposal for comment and prepared a supplemental environmental assessment.⁷ And yet, in this order, the Commission is performing *less* analysis for an indisputably *more* significant change at the Rio Grande LNG facility. That is not reasoned decisionmaking.

5. In addition, the Commission points to a pair of conditions included in Rio Grande's Certificate Order to justify its approach in today's order.⁸ In particular, it identifies Environmental Condition 1—which allows Rio Grande to request modification to procedures, measures, or conditions of the Certificate Order, so long as the modifications provide an equal or greater level of environmental protection than the original measure—and Environmental Condition 6—which requires Rio Grande to file detailed maps identifying any proposed route realignments or facility relocations, along with detailed environmental documentation to support its variance request.⁹ Those

⁴ *Rio Grande LNG, LLC*, 174 FERC ¶ 61,048, at P 7 (2021) (Order).

⁵ *Id.* n.19.

⁶ *Golden Pass LNG Terminal LLC*, 174 FERC ¶ 61,053 (2021).

⁷ *Id.* P 6.

⁸ Order, 174 FERC ¶ 61,048 at P 4 n.12, P 7, P 16 n.53.

⁹ Certificate Order, 169 FERC ¶ 61,131 at App., Environmental Conditions Nos. 1 & 6.

conditions, it argues, vest Commission staff with the discretion to approve all of Rio Grande's proposed design changes without going through the amendment process.¹⁰

6. We disagree. Taken to its logical conclusion, the Commission's reading of those conditions would allow the Commission to approve almost any level of modification without an amendment, so long as Rio Grande submits a map and asserts that the environmental impacts of that option are no worse than those associated with the option it approved. We do not believe that the Commission can use environmental conditions to sidestep its obligation to ensure that a modified design of a previously approved LNG facility remains consistent with the public interest.

7. Second, the Commission should have prepared a supplemental National Environmental Policy Act (NEPA) analysis to consider the environmental, reliability, and safety effects of eliminating one train and increasing the export capacity on the remaining five. The Commission also should have taken public comment on that analysis. The Council on Environmental Quality's regulations require a supplemental environmental analysis when an agency makes "substantial changes to the proposed action," or where there are "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."¹¹ Changing the number of liquefaction trains and substantially increasing the export capacity of the remaining trains qualifies as a "substantial change," which requires supplemental NEPA analysis.

8. Performing a supplemental NEPA analysis is particularly important here, given the lackluster environmental review that the Commission performed in these proceedings. The Rio Grande facility is one of three LNG export facilities recently approved for a single ship channel in Brownsville, Texas.¹² Siting such significant projects in that area raises serious environmental justice concerns.¹³ The Commission, however, has never adequately confronted those concerns, instead taking the untenable still-hard-to-fathom position that the facilities do not raise environmental justice concerns because their impacts fall almost exclusively on environmental justice communities.¹⁴ In addition, the

¹⁰ Order, 174 FERC ¶ 61,048 at P 16.

¹¹ 40 C.F.R. § 1502.9(c)(1).

¹² The others are the Annova LNG Common Infrastructure, LLC facility, *Annova LNG Common Infrastructure, LLC*, 169 FERC ¶ 61,132 (2019), and the Texas LNG Brownsville LLC facility, *Texas LNG Brownsville LLC*, 169 FERC ¶ 61,130 (2019).

¹³ *Rio Grande LNG, LLC*, 170 FERC ¶ 61,046 (Glick, Comm'r, dissenting at PP 10-14).

¹⁴ *Id.* PP 69-70; *id.* (Glick, Comm'r, dissenting at P 11) (pointing out that the underlying order dismisses environmental justice concerns because "no environmental

Commission has already once had to redo its environmental analysis after failing to identify a potential violation of the National Ambient Air Quality Standards due to these projects.¹⁵ Finally the Brownsville, Texas projects will have a significant adverse effect on endangered species, including the ocelot and jaguarundi.¹⁶ Under those circumstances, it is particularly important to perform a NEPA analysis. Doing so would have allowed the Commission to fully consider the impacts of Rio Grande's proposed design changes on the surrounding environmental justice communities and endangered species and whether, in light of those changes, other steps are appropriate to lessen those impacts.

For these reasons, we respectfully dissent.

Richard Glick
Commissioner

Allison Clements
Commissioner

justice communities are 'disproportionately affected' by the Project since almost all the communities affected—96 percent of the relevant census tracts—are either low-income or minority communities. In other words, the Commission concludes that because the Project basically affects only low-income or minority populations, its effects do not fall disproportionately on those communities.”) (citations omitted).

¹⁵ *Id.* P 55.

¹⁶ *Id.* (Glick, Comm'r, dissenting at P 16) (discussing how “the cumulative effects of the Brownsville LNG facilities will have a significant adverse impact on endangered species, including the ocelot, the jaguarundi, and the aplomado falcon”).

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DG2E/Gas Branch 4
Rio Grande LNG, LLC and
Rio Bravo Pipeline Company, LLC
Docket Nos. CP16-454-000 and
CP16-455-000
§ 375.308(x)

February 3, 2022

VIA FERC Service

David Wochner
Counsel for Rio Grande LNG, LLC
K&L Gates LLP
1601 K Street NW
Washington, DC 20006

Re: Environmental Information Request

Dear Mr. Wochner:

The information described in the enclosure is requested for the above-mentioned docket to address deficiencies noted in the U.S. Court of Appeals for the D.C. Circuit's August 3, 2021 decision in *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321 (D.C. Cir. 2021). **Please file a complete response within 30 days of the date of this letter.** If certain information cannot be provided within this time frame, please indicate which items will be delayed and provide a projected filing date.

File your response in accordance with the provisions of the Commission's Rules of Practice and Procedure. In particular, 18 CFR 385.2005 requires all responses to be filed under oath by an authorized Rio Grande LNG, LLC representative, and 18 CFR 385.2010 (Rule 2010) requires service to each person whose name appears on the official service list for this proceeding.

Electronic filing is encouraged using the Commission's eFiling system (see <https://ferconline.ferc.gov/eFiling.aspx>). Be sure to prepare separate volumes, as outlined on the Commission's website at <https://www.ferc.gov/sites/default/files/2020-04/CEII-Filing-guidelines.pdf>, and label all controlled unclassified information (CUI) as described at <https://www.ferc.gov/cui>. Critical Energy Infrastructure Information (CEII) (e.g., plot plans showing equipment or piping details) and privileged information (PRIV) (e.g.,

JA647

cultural resources material containing location, character, or ownership information; trade secret information; proprietary information) should be filed as non-public and labeled as: “CUI//CEII” (18 CFR 388.113), “CUI//PRIV” (18 CFR 388.112), and as otherwise appropriate with other statutes for labeling CUI (e.g., “CUI//CEII/SSI” and in accordance with 49 CFR 15.13 marking requirements). All CUI should be filed separately from the remaining information, which should be marked “Public.” For assistance with the Commission’s eFiling system, please contact FERC Online Support at FERCOnlineSupport@ferc.gov, (866) 208-3676 (toll free), or (202) 502-8659 (TTY).

In addition, effective July 1, 2020, hardcopy deliveries to the Commission’s headquarters in Washington D.C. will only be accepted through the U.S. Postal Service. Hand-deliveries and submissions sent through carriers other than the U.S. Postal Service must be sent to 12225 Wilkins Avenue, Rockville, MD 20852 for processing (see Docket No. RM19-18-000; Order No. 862). If you have any questions, please contact me at (202) 502-6859. Thank you for your cooperation.

Sincerely,



Kenneth J. Warn
Environmental Project Manager
Office of Energy Projects

Enclosure

cc: VIA FERC Service

Jennifer Rinker
Associate General Counsel
Rio Bravo Pipeline Company, LLC
P.O. Box 1642
Houston, TX 77251-1642

Enclosure

Rio Grande LNG, LLC (RG LNG)
Rio Bravo Pipeline Company, LLC
Rio Grande LNG Project (Project)
Docket Nos. CP16-454-000 and CP16-455-000

ENVIRONMENTAL INFORMATION REQUEST**Resource Report 5**

1. Provide an updated table (see format below) of racial, ethnic, and poverty statistics for block groups within 50 kilometers¹ of the RG LNG Terminal site. The table should include the following information from the U.S. Census Bureau for each state, county, and block group (for low-income data, use U.S. Census American Community Survey File Number B17017, and for race and ethnicity data, use U.S. Census American Community Survey File Number B03002):
 - a. total population;
 - b. percentage of each racial and ethnic group (White Alone Not Hispanic, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, some other race, two or more races, Hispanic or Latino origin [of any race]);
 - c. total minority population including individuals of Hispanic or Latino origin (percentage of total population); and
 - d. percentage of total population below poverty level.

¹ The final determination of the environmental justice radius of review may differ from this initial request.

Table XX Minority Populations by Race ^a and Low-Income Populations in the Project Area											
	RACE COLUMN										LOW- INCOME COLUMN
State/ County/ Tract/ Block Group	White (Not Hispanic) (%)	Black or African American (%)	Asian (%)	American Indian and Alaskan Native (%)	Native Hawaiian and Other Pacific Islander (%)	Some other race (%)	Two or more races (%)	Hispanic or Latino (%)	Total Minority ^b (%)		Total Persons Below Poverty Level ^b (%)
State of											
Include Name of Project Component											
County											
Census Tract / Block Group											
Include Name of Project Component											
County											
Census Tract/Block Group											
Source: American Community Survey, 2015-2019, File # B01017 and File # B03002. ^a “Minority” refers to people who reported their ethnicity and race as something other than non-Hispanic White. ^b Minority or low-income populations exceeding the established thresholds are indicated in bold type and gray shading. Due to rounding differences in the dataset, the totals may not reflect the sum of the addends.											

Resource Report 9

- Provide an update of RG LNG’s criteria pollutant (NO_x, CO, SO₂, PM₁₀, PM_{2.5}), volatile organic compound, speciated greenhouse gases (carbon dioxide, methane, and nitrous oxide), and speciated hazardous air pollutant emission rates (in tons per year) based on the most recent design of the RG LNG Terminal. Include emission quantification for all phases of the Project such as construction, commissioning, and operation as well as from stationary and mobile sources. Provide an estimate of commissioning emissions and clarify when the anticipated commissioning would occur. If the anticipated schedule for commissioning overlaps with construction and/or operation, provide an estimate of the combined emissions (as identified above). Provide tables with annual emissions totals during any overlapping phases of the Project. Include supporting calculations, emission factors, fuel consumption rates, vehicle power ratings, utilization rates, and hours of operation. Emission factors should be based on one of the following methodologies: U.S. Environmental Protection Agency (EPA)-certified emission

standards, manufacturer data; current EPA AP-42 emission factors; or peer-reviewed studies for the equipment.

3. Provide an updated refined air quality model for the RG LNG Terminal that includes:
 - a. a demonstration that emissions of criteria pollutants from the RG LNG Terminal and mobile sources do not result in exceedance of the National Ambient Air Quality Standards (NAAQS), or state standards. Ensure that all emissions from the RG LNG Terminal are reflected in the air quality model inputs and provide all source input parameters (emission rate, stack height, stack temperature, exit velocity, etc.), and justify the bases for any assumptions. Include mobile ship emissions (LNG carrier, tugs, escort vessels) for the air quality model for the moored safety zone. The model should include relevant regional monitoring ambient background data and existing and proposed regional industrial major sources within 50 kilometers of the fenceline of the RG LNG Terminal (excluding the Texas LNG Terminal [Docket No. CP16-116-000]).
 - b. Include a model of secondarily formed ozone based on background concentrations of ozone and relevant nearby sources. The model should follow guidance provided by the EPA for Region 6, if available.
 - c. Provide a table showing the highest predicted concentrations of all criteria pollutants outside the fenceline as well as the location of these highest concentrations relative to the RG LNG Terminal. The table should include (1) the modeled concentration that is contributed by the RG LNG Terminal, (2) the modeled combined background concentration with industrial sources within 50 kilometers at that location, and (3) the total concentration.
 - d. Provide figures showing the concentration isopleths (i.e., concentration plumes), showing the full range of concentrations for all criteria pollutants including ozone for the highest impact scenario. Show the concentration isopleths starting from the RG LNG Terminal and extending to 50 kilometers from the fenceline. There should be a separate figure for each criteria pollutant.
 - e. Provide another set of figures as in (d) with an overlay of the census block groups in the figures. Clearly label areas where there is a modeled exceedance of the NAAQS.
 - f. Provide a table (or tables) showing the maximum modeled concentrations of each criteria pollutant within each census block group within 50 kilometers of the RG LNG Terminal fenceline.



VIA ELECTRONIC FILING

March 3, 2022

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

**Re: OEP/DG2E/Gas Branch 4
Rio Grande LNG, LLC and Rio Bravo Pipeline Company, LLC
Docket Nos. CP16-454-000 and CP16-455-000
Response to the February 3, 2022 Environmental Information Request**

Dear Ms. Bose:

On May 5, 2016, Rio Grande LNG, LLC ("RGLNG") filed an application with the Federal Energy Regulatory Commission (the "FERC") for authorization pursuant to Section 3(a) of the Natural Gas Act (the "NGA") to site, construct, and operate a natural gas liquefaction facility and liquefied natural gas ("LNG") export terminal in Cameron County, Texas, along the north embankment of the Brownsville Ship Channel (the "Rio Grande LNG Project" or "Terminal").

On November 22, 2019, FERC issued an order authorizing the construction and operation of the Rio Grande LNG Project (the "Order"). On January 23, 2020, FERC denied requests for rehearing of the Order. On January 19, 2021, FERC denied requests for rehearing of the Order related to design changes approved on August 13, 2020.

On February 3, 2022, FERC Staff issued an Environmental Information Request ("EIR") intended to address deficiencies noted in the U.S. Circuit Court of Appeals for the D.C. Circuit's August 3, 2021 decision in *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321 (D.C. Cir. 2021). RGLNG hereby submits information responsive to this February 3, 2022, EIR.

This filing is being served on each person on the official service list for this proceeding.

If you have any questions, please contact Jerry Schafer at 832-426-2955.

1000 Louisiana Street, 39th Floor
Houston, TX 77002
+1 713-574-1880
www.next-decade.com

JA652

Rio Grande LNG, LLC
 Rio Grande LNG Project
 CP16-454-000

Response to February 3, 2022 Data Request

FERC Environmental Information Request

Resource Report 5

1. Provide an updated table (see format below) of racial, ethnic, and poverty statistics for block groups within 50 kilometers of the RG LNG Terminal site. The table should include the following information from the U.S. Census Bureau for each state, county, and block group (for low-income data, use U.S. Census American Community Survey File Number B17017, and for race and ethnicity data, use U.S. Census American Community Survey File Number B03002):

- total population;
- percentage of each racial and ethnic group (White Alone Not Hispanic, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, some other race, two or more races, Hispanic or Latino origin [of any race]);
- total minority population including individuals of Hispanic or Latino origin (percentage of total population); and
- percentage of total population below poverty level.

Table XX Minority Populations by Race ^a and Low-Income Populations in the Project Area											
	RACE COLUMN										LOW-INCOME COLUMN
State/ County/ Tract/ Block Group	White (Not Hispanic) (%)	Black or African American (%)	Asian (%)	American Indian and Alaskan Native (%)	Native Hawaiian and Other Pacific Islander (%)	Some other race (%)	Two or more races (%)	Hispanic or Latino (%)	Total Minority ^b (%)		Total Persons Below Poverty Level ^b (%)
State of											
Include Name of Project Component											
County											
Census Tract / Block Group											
Include Name of Project Component											
County											
Census Tract/Block Group											
Source: American Community Survey, 2015-2019, File # B01017 and File # B03002. ^a "Minority" refers to people who reported their ethnicity and race as something other than non-Hispanic White. ^b Minority or low-income populations exceeding the established thresholds are indicated in bold type and gray shading. Due to rounding differences in the dataset, the totals may not reflect the sum of the addends.											

Rio Grande LNG, LLC
Rio Grande LNG Project
CP16-454-000

Response to February 3, 2022 Data Request

Rio Grande's Response:

Racial, ethnic, and poverty statistics for block groups within 50 kilometers of the RGLNG Terminal site are provided in Table 5-1 below.

Below Poverty Level (low-income) information was collected from the U.S. Census Bureau American Community Survey (ACS) 5-year Estimates Detailed Table B17017. Race and ethnicity data was collected from the U.S. Census Bureau ACS 5-year Estimates Detailed Table B03002 for state, county, and block groups within 50 kilometers of the RGLNG Terminal site.

Of the 241 block groups included, two (2) are over water (9900 Cameron and 9900 Willacy), two (2) are airports (9800.01 and 9801) with no population and 29 are block groups within Cameron or Willacy counties but assessed to be further than 50 kilometers (indicated with a *) from the RGLNG Terminal site, which are included in order to demonstrate that the block groups and population within the 50 kilometers of the RGLNG Terminal site are not particularly distinct from those areas outside the 50 kilometers. Applying the 50% and meaningfully greater analysis methods for minority populations and the low-income threshold criteria method for low-income populations, only three (3) populated block groups within 50 kilometers of RGLNG Terminal included in the table do *not* include environmental justice communities. 98.6% of the census block groups extending to 50 kilometers from the RGLNG Terminal include environmental justice communities.

Table 5-1											
Minority Populations by Race and Low-Income Populations within 50 Kilometers of RGLNG Terminal											
State/ County/ Tract/ Block Group	Total Population	RACE COLUMN									LOW- INCOME COLUMN
		White (Not Hispanic) (%)	Black or African American (%)	American Indian and Alaskan Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Some other race (%)	Two or more races (%)	Hispanic or Latino (%)	Total Minority (%) ^{a, b}	Below Poverty Level (%) ^b
Texas	28,260,856	42.0	11.8	0.3	4.7	0.1	0.2	1.7	39.3	58.0	13.7
Rio Grande LNG Terminal											
Cameron County	423,163	8.6	0.4	0.1	0.7	0.0	0.0	0.2	90.0	91.4	25.3
Census Tract 101											
Block Group 1	2,502	20.1	0.0	0.7	0.0	0.0	0.0	0.0	79.2	79.9	25.0
Block Group 2	2,136	13.2	0.0	0.0	0.3	0.0	0.0	0.0	86.5	86.8	24.3
Block Group 3	3,070	1.5	0.0	0.0	0.0	0.0	0.0	0.9	97.6	98.5	28.3
Block Group 4	876	65.0	0.0	0.0	2.7	0.0	0.0	0.0	32.3	35.0	25.7
Block Group 5	992	12.0	0.0	0.0	0.0	0.0	0.0	0.0	88.0	88.0	27.8

Rio Grande LNG, LLC
Rio Grande LNG Project
CP16-454-000

Response to February 3, 2022 Data Request

Table 5-1											
Minority Populations by Race and Low-Income Populations within 50 Kilometers of RGLNG Terminal											
		RACE COLUMN									LOW-INCOME COLUMN
State/County/Tract/Block Group	Total Population	White (Not Hispanic) (%)	Black or African American (%)	American Indian and Alaskan Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Some other race (%)	Two or more races (%)	Hispanic or Latino (%)	Total Minority (%) ^{a, b}	Below Poverty Level (%) ^b
<i>Census Tract 102.01</i>											
<i>Block Group 1</i>	2,280	6.0	0.0	0.0	0.0	0.0	0.0	0.0	94.0	94.0	17.1
<i>Census Tract 102.03</i>											
<i>Block Group 1</i>	1,802	22.0	0.0	0.0	1.5	0.0	0.0	0.0	76.5	78.0	24.3
<i>Block Group 2</i>	2,039	16.6	0.3	0.0	0.0	0.0	0.0	0.0	83.1	83.4	27.4
<i>Block Group 3</i>	2,344	21.2	0.0	0.0	0.0	0.0	0.0	0.0	78.8	78.8	22.8
<i>Block Group 4</i>	1,974	25.6	0.6	0.0	0.4	0.0	0.0	0.0	73.5	74.4	39.2
<i>Census Tract 103.01</i>											
<i>Block Group 1*</i>	1,493	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	34.4
<i>Block Group 2*</i>	3,832	8.0	0.0	0.0	0.0	0.0	0.0	0.0	92.0	92.0	20.0
<i>Census Tract 103.02</i>											
<i>Block Group 1*</i>	1,291	8.2	0.0	0.0	0.0	0.0	0.0	0.0	91.8	91.8	35.9
<i>Block Group 2*</i>	2,408	3.7	0.0	0.0	0.0	0.0	0.0	0.0	96.3	96.3	10.6
<i>Block Group 3*</i>	2,517	23.1	0.0	0.0	0.0	0.0	0.0	0.9	76.0	76.9	32.3
<i>Block Group 4*</i>	3,201	22.8	0.0	0.8	7.6	0.0	0.0	0.0	68.7	77.2	20.1
<i>Census Tract 104.01</i>											
<i>Block Group 1</i>	3,903	4.6	3.5	0.0	0.0	0.0	0.0	0.0	91.9	95.4	17.6
<i>Block Group 2*</i>	2,607	10.7	0.0	0.0	1.8	0.0	0.0	0.0	87.4	89.3	24.1
<i>Census Tract 104.02</i>											
<i>Block Group 1*</i>	2,299	51.7	0.0	0.2	1.3	0.0	0.0	0.0	46.8	48.3	6.5
<i>Block Group 2</i>	3,545	6.0	1.6	0.0	0.0	0.0	0.0	0.0	92.4	94.0	34.7
<i>Block Group 3</i>	2,329	7.8	0.0	0.0	0.0	0.0	0.0	0.0	92.2	92.2	17.3
<i>Census Tract 105</i>											
<i>Block Group 1</i>	452	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	9.1
<i>Block Group 2</i>	2,215	2.9	0.0	0.0	0.1	0.0	0.0	0.0	97.0	97.1	30.3
<i>Census Tract 106.01</i>											
<i>Block Group 1</i>	1,372	2.5	0.0	0.0	3.4	0.0	0.0	0.0	94.2	97.5	48.6
<i>Block Group 2</i>	2,465	14.0	0.0	3.8	3.8	0.0	0.0	1.5	76.9	86.0	10.1
<i>Block Group 3</i>	1,475	5.8	0.0	0.0	0.0	0.0	0.0	1.1	93.2	94.2	44.4

Rio Grande LNG, LLC
Rio Grande LNG Project
CP16-454-000

Response to February 3, 2022 Data Request

Table 5-1											
Minority Populations by Race and Low-Income Populations within 50 Kilometers of RGLNG Terminal											
		RACE COLUMN									LOW-INCOME COLUMN
State/County/Tract/Block Group	Total Population	White (Not Hispanic) (%)	Black or African American (%)	American Indian and Alaskan Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Some other race (%)	Two or more races (%)	Hispanic or Latino (%)	Total Minority (%) ^{a, b}	Below Poverty Level (%) ^b
Block Group 4	1,784	11.4	0.7	0.0	0.9	0.0	0.0	0.0	87.0	88.6	19.6
Block Group 5	1,346	10.8	0.5	0.0	0.0	0.0	0.0	0.9	87.7	89.2	55.2
Census Tract 106.02											
Block Group 1	1,532	24.7	1.0	0.0	0.8	0.0	0.0	1.7	71.7	75.3	15.0
Census Tract 107											
Block Group 1	571	9.5	0.0	0.0	0.0	0.0	0.0	0.0	90.5	90.5	8.2
Block Group 2	963	13.6	0.0	0.0	0.0	0.0	0.0	0.0	86.4	86.4	30.7
Block Group 3	1,351	14.1	0.0	0.0	0.0	0.9	0.0	0.8	84.2	85.9	25.7
Census Tract 108											
Block Group 1	689	14.5	0.0	0.0	0.0	0.0	0.0	0.0	85.5	85.5	52.0
Block Group 2	1,664	16.3	0.0	1.4	0.0	0.0	0.0	0.0	82.2	83.7	8.7
Block Group 3	1,408	20.9	0.0	0.0	0.0	0.0	0.0	0.0	79.1	79.1	49.2
Block Group 4	3,648	11.3	0.0	0.6	0.0	0.0	0.0	0.0	88.0	88.7	31.6
Census Tract 109											
Block Group 1	502	1.6	2.6	0.0	1.4	0.0	0.0	2.0	92.4	98.4	36.2
Block Group 2	946	2.2	0.0	0.0	0.0	0.0	0.0	0.0	97.8	97.8	44.0
Census Tract 110											
Block Group 1	676	9.3	0.0	0.0	0.0	0.0	0.0	0.0	90.7	90.7	38.2
Block Group 2	667	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	51.7
Block Group 3	1,453	4.9	0.0	0.0	0.0	0.0	0.0	0.0	95.1	95.1	46.3
Census Tract 111											
Block Group 1	734	11.2	1.1	0.0	0.0	0.0	0.0	0.0	87.7	88.8	28.0
Block Group 2	995	1.1	0.0	0.0	0.0	0.0	0.0	0.0	98.9	98.9	44.8
Block Group 3	635	8.8	0.0	0.0	0.0	0.0	0.0	0.0	91.2	91.2	23.8
Census Tract 112											
Block Group 1	845	18.1	0.0	0.0	0.0	0.0	0.0	0.0	81.9	81.9	24.6
Block Group 2	821	9.0	0.0	0.0	0.0	0.0	0.0	0.0	91.0	91.0	44.3
Census Tract 113.01											
Block Group 1	719	37.3	0.0	0.0	0.0	0.0	0.0	0.0	62.7	62.7	9.9

Rio Grande LNG, LLC
 Rio Grande LNG Project
 CP16-454-000

Response to February 3, 2022 Data Request

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		RACE COLUMN									LOW-INCOME COLUMN
State/County/Tract/Block Group	Total Population	White (Not Hispanic) (%)	Black or African American (%)	American Indian and Alaskan Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Some other race (%)	Two or more races (%)	Hispanic or Latino (%)	Total Minority (%) ^{a, b}	Below Poverty Level (%) ^b
Block Group 2	689	29.6	1.5	0.0	0.0	0.0	0.0	0.0	68.9	70.4	30.3
Census Tract 113.02											
Block Group 1	1,179	45.9	5.3	0.0	0.0	0.0	0.0	4.5	44.4	54.1	6.0
Block Group 2	1,383	28.2	4.4	0.0	2.6	0.0	0.0	0.0	64.8	71.8	7.4
Block Group 3	1,925	22.9	1.0	0.6	2.7	0.0	0.0	0.0	72.7	77.1	8.1
Census Tract 114											
Block Group 1	673	20.2	0.0	0.0	0.0	0.0	0.0	0.0	79.8	79.8	12.6
Block Group 2	2,463	7.5	1.5	0.0	0.0	0.0	0.0	0.0	91.0	92.5	16.5
Block Group 3	1,019	24.0	0.0	0.0	0.0	0.0	0.0	0.0	76.0	76.0	30.6
Block Group 4	2,232	13.3	0.0	0.0	0.0	0.0	0.0	0.0	86.7	86.7	22.1
Census Tract 115											
Block Group 1	804	4.7	0.0	0.0	0.0	0.0	0.0	0.0	95.3	95.3	31.4
Block Group 2	719	0.0	0.7	0.0	0.0	0.0	0.0	0.0	99.3	100.0	38.1
Block Group 3	921	4.9	0.0	0.0	0.0	0.0	0.0	0.0	95.1	95.1	47.1
Block Group 4	603	2.8	0.0	0.0	0.0	0.0	0.0	0.0	97.2	97.2	27.9
Block Group 5	3,253	4.2	0.0	0.0	0.0	0.0	0.0	0.0	95.8	95.8	27.2
Census Tract 116											
Block Group 1	1,123	6.8	0.0	0.0	0.0	1.0	0.0	0.0	92.3	93.2	22.2
Block Group 2	875	2.1	0.0	0.0	0.0	0.0	0.0	0.0	97.9	97.9	53.7
Block Group 3	1,772	0.9	0.7	0.0	0.0	0.0	0.0	0.0	98.4	99.1	41.9
Block Group 4	2,342	0.9	0.0	0.0	0.0	0.0	0.0	0.6	98.5	99.1	28.3
Census Tract 117											
Block Group 1	1,120	0.1	0.0	0.0	0.0	0.0	0.0	0.0	99.9	99.9	29.0
Block Group 2	1,170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	36.1
Block Group 3	1,289	3.8	0.0	0.0	0.0	0.0	0.0	0.0	96.2	96.2	53.0
Block Group 4	2,543	5.5	0.4	0.0	0.0	0.0	0.0	0.0	94.1	94.5	36.9
Block Group 5	1,461	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	47.6
Census Tract 118.01											

Rio Grande LNG, LLC
 Rio Grande LNG Project
 CP16-454-000

Response to February 3, 2022 Data Request

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Minority Populations by Race and Low-Income Populations within 50 Kilometers of RGLNG Terminal											
		RACE COLUMN									LOW-INCOME COLUMN
State/County/Tract/Block Group	Total Population	White (Not Hispanic) (%)	Black or African American (%)	American Indian and Alaskan Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Some other race (%)	Two or more races (%)	Hispanic or Latino (%)	Total Minority (%) ^{a, b}	Below Poverty Level (%) ^b
<i>Block Group 1</i>	4,159	13.3	1.5	0.0	3.4	0.0	0.0	0.2	81.6	86.7	35.9
<i>Block Group 2</i>	1,686	2.8	0.0	0.0	0.0	0.0	0.0	0.0	97.2	97.2	9.3
<i>Census Tract 118.02</i>											
<i>Block Group 1</i>	567	3.5	1.1	0.0	0.0	0.0	0.0	3.9	91.5	96.5	28.3
<i>Block Group 2</i>	1,715	6.8	1.6	0.0	0.0	0.0	0.0	0.0	91.7	93.2	51.9
<i>Block Group 3</i>	1,099	6.9	0.0	0.0	6.2	0.0	0.0	0.0	86.9	93.1	20.9
<i>Census Tract 119.01</i>											
<i>Block Group 1*</i>	2,073	10.7	0.9	0.0	0.0	0.0	0.0	0.0	88.4	89.3	34.7
<i>Block Group 2*</i>	1,232	14.7	0.0	0.0	0.0	0.0	0.0	0.0	85.3	85.3	31.8
<i>Block Group 3*</i>	1,657	7.8	0.0	0.0	0.0	0.0	0.0	0.0	92.2	92.2	23.3
<i>Block Group 4*</i>	1,130	17.4	0.0	0.0	5.6	0.0	0.0	0.0	77.0	82.6	35.9
<i>Census Tract 119.02</i>											
<i>Block Group 1*</i>	3,167	18.0	0.0	0.0	0.0	0.0	0.0	0.4	81.5	82.0	14.6
<i>Block Group 2*</i>	2,090	5.8	0.0	0.0	0.0	0.0	0.0	0.0	94.2	94.2	32.4
<i>Census Tract 119.03</i>											
<i>Block Group 1*</i>	2,668	3.9	0.0	0.0	0.0	0.0	0.0	0.0	96.1	96.1	29.2
<i>Census Tract 120.01</i>											
<i>Block Group 1*</i>	1,147	22.8	0.0	0.0	2.8	0.0	0.0	0.0	74.4	77.2	7.8
<i>Block Group 2</i>	3,654	11.4	6.2	0.0	4.1	0.0	0.0	1.4	77.0	88.6	19.5
<i>Block Group 3</i>	995	19.4	0.0	0.0	0.0	0.0	0.0	0.0	80.6	80.6	23.1
<i>Block Group 4</i>	293	87.4	0.0	0.0	0.0	0.0	0.0	0.0	12.6	12.6	10.0
<i>Census Tract 120.02</i>											
<i>Block Group 1</i>	3,221	16.0	0.7	0.0	4.6	0.0	0.0	0.0	78.7	84.0	16.8
<i>Block Group 2</i>	1,936	20.8	0.2	0.0	0.0	0.0	0.0	0.0	79.1	79.2	13.5
<i>Census Tract 121.01</i>											
<i>Block Group 1</i>	472	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.7
<i>Block Group 2</i>	2,421	10.1	0.0	0.0	0.3	0.0	0.0	0.7	89.0	89.9	19.5
<i>Block Group 3</i>	1,721	10.7	0.0	0.0	3.6	0.5	0.0	1.5	83.7	89.3	5.0
<i>Census Tract 121.02</i>											

Rio Grande LNG, LLC
 Rio Grande LNG Project
 CP16-454-000

Response to February 3, 2022 Data Request

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State/County/Tract/Block Group	Total Population	White (Not Hispanic) (%)	Black or African American (%)	American Indian and Alaskan Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Some other race (%)	Two or more races (%)	Hispanic or Latino (%)	Total Minority (%) ^{a, b}	Below Poverty Level (%) ^b
Block Group 1	1,400	3.6	0.0	0.0	0.0	0.0	0.0	0.0	96.4	96.4	13.6
Block Group 2	3,457	1.7	0.0	0.0	0.0	0.0	0.0	0.0	98.3	98.3	54.5
Census Tract 122											
Block Group 1	2,275	14.5	0.0	0.0	0.0	0.0	0.0	0.1	85.4	85.5	20.8
Block Group 2	1,435	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	36.1
Block Group 3	922	22.9	0.0	0.0	0.0	0.0	0.0	0.4	76.7	77.1	22.3
Block Group 4	3,937	1.1	0.0	0.0	0.0	0.0	0.0	0.0	98.9	98.9	37.5
Block Group 5	2,186	1.2	5.3	0.0	0.0	0.0	0.0	0.5	93.0	98.8	16.1
Census Tract 123.01											
Block Group 1	1,432	49.9	0.0	0.0	0.0	0.0	1.3	0.3	48.5	50.1	18.4
Block Group 2	2,497	40.7	0.5	0.4	1.1	0.0	0.0	0.4	56.9	59.3	17.7
Census Tract 123.04											
Block Group 1	569	61.5	0.0	0.0	0.0	0.0	0.0	0.0	38.5	38.5	42.2
Block Group 2	1,992	31.6	0.0	0.0	3.5	0.0	0.0	0.0	64.9	68.4	12.0
Block Group 3	1,784	7.6	0.0	0.0	0.0	0.0	0.0	0.0	92.4	92.4	40.0
Census Tract 123.05											
Block Group 1	3,051	74.7	0.0	0.0	0.0	0.0	0.0	0.0	25.3	25.3	8.2
Census Tract 124.01											
Block Group 1	4,296	6.6	0.0	0.0	0.0	0.0	0.0	0.2	93.1	93.4	24.5
Block Group 2	1,700	5.7	0.0	0.0	0.0	0.0	0.0	0.0	94.3	94.3	35.3
Block Group 3	1,171	18.9	0.0	0.0	0.0	0.0	0.0	0.0	81.1	81.1	29.2
Census Tract 124.02											
Block Group 1	1,955	12.8	0.0	1.6	0.0	0.0	0.0	0.0	85.6	87.2	30.3
Block Group 2	2,950	17.1	0.0	0.0	0.0	0.0	0.0	0.0	82.9	82.9	32.2
Block Group 3	847	9.4	0.0	10.2	0.0	0.0	0.0	0.0	80.4	90.6	33.6
Census Tract 125.04											
Block Group 1	3,242	11.4	0.0	5.2	4.9	0.0	0.0	0.0	78.5	88.6	51.2
Block Group 2	14,892	5.4	0.0	0.0	0.0	0.0	0.0	0.0	94.6	94.6	17.0
Census Tract 125.05											

Rio Grande LNG, LLC
 Rio Grande LNG Project
 CP16-454-000

Response to February 3, 2022 Data Request

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State/County/Tract/Block Group	Total Population	White (Not Hispanic) (%)	Black or African American (%)	American Indian and Alaskan Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Some other race (%)	Two or more races (%)	Hispanic or Latino (%)	Total Minority (%) ^{a, b}	Below Poverty Level (%) ^b
<i>Block Group 1</i>	1,775	4.7	0.0	0.0	0.0	0.0	0.0	0.0	95.3	95.3	15.7
<i>Block Group 2</i>	2,248	2.0	0.0	0.0	0.0	0.0	0.0	0.0	98.0	98.0	25.9
<i>Block Group 3</i>	6,748	0.9	0.0	0.0	0.0	0.0	0.0	1.1	98.0	99.1	34.8
<i>Census Tract 125.06</i>											
<i>Block Group 1</i>	1,989	29.1	0.0	0.0	9.9	0.0	0.0	0.0	61.1	70.9	16.1
<i>Block Group 2</i>	2,552	14.2	0.0	0.0	0.0	0.0	0.0	0.0	85.8	85.8	12.8
<i>Census Tract 125.07</i>											
<i>Block Group 1</i>	4,199	5.4	0.0	0.0	0.0	0.0	0.0	0.0	94.6	94.6	40.4
<i>Block Group 2</i>	2,865	2.3	0.0	0.0	0.0	0.0	0.0	0.0	97.7	97.7	23.1
<i>Census Tract 125.08</i>											
<i>Block Group 1</i>	4,164	11.9	0.0	0.1	0.6	0.0	0.0	0.0	87.4	88.1	20.5
<i>Census Tract 126.07</i>											
<i>Block Group 1</i>	3,016	1.0	0.0	0.0	0.0	0.0	0.0	0.0	99.0	99.0	33.9
<i>Census Tract 126.08</i>											
<i>Block Group 1</i>	2,953	15.5	0.0	0.0	0.3	0.0	0.0	0.0	84.2	84.5	16.1
<i>Block Group 2</i>	1,603	0.2	0.5	0.0	0.0	0.0	0.0	0.0	99.3	99.8	52.5
<i>Census Tract 126.09</i>											
<i>Block Group 1</i>	3,424	1.4	0.0	0.0	0.0	0.0	0.0	0.0	98.6	98.6	48.0
<i>Block Group 2</i>	1,125	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	15.7
<i>Block Group 3</i>	2,453	10.1	0.0	0.0	0.0	0.0	0.0	0.0	89.9	89.9	26.3
<i>Census Tract 126.12</i>											
<i>Block Group 1</i>	2,948	1.8	1.2	0.0	2.6	0.0	0.0	0.0	94.4	98.2	9.0
<i>Block Group 2</i>	2,370	4.1	0.5	2.4	0.0	0.0	0.0	0.0	93.0	95.9	9.0
<i>Block Group 3</i>	1,046	1.1	0.0	0.0	0.0	0.0	0.0	0.0	98.9	98.9	0.0
<i>Census Tract 126.13</i>											
<i>Block Group 1</i>	748	3.1	0.0	0.0	0.0	0.0	0.0	0.0	96.9	96.9	7.9
<i>Block Group 2</i>	1,046	5.4	1.1	0.0	5.4	0.0	0.0	0.0	88.2	94.6	2.9
<i>Block Group 3</i>	2,050	5.8	4.0	0.0	2.7	0.0	0.0	1.2	86.3	94.2	12.1
<i>Block Group 4</i>	1,442	1.4	9.1	0.0	1.7	0.0	0.0	0.8	87.0	98.6	19.4

Rio Grande LNG, LLC
 Rio Grande LNG Project
 CP16-454-000

Response to February 3, 2022 Data Request

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<i>Census Tract 127</i>											
<i>Block Group 1</i>	4,415	1.2	0.0	0.0	0.0	0.0	0.0	0.0	98.8	98.8	33.1
<i>Block Group 2</i>	606	12.7	0.0	0.0	0.0	0.0	0.0	0.0	87.3	87.3	39.8
<i>Census Tract 128</i>											
<i>Block Group 1</i>	2,376	1.4	0.0	0.0	0.0	0.0	0.0	0.0	98.6	98.6	33.6
<i>Block Group 2</i>	1,776	3.4	0.0	0.0	0.0	0.0	0.0	0.0	96.6	96.6	8.9
<i>Block Group 3</i>	1,015	18.1	4.5	0.0	0.0	0.0	0.0	0.0	77.3	81.9	1.9
<i>Census Tract 129</i>											
<i>Block Group 1</i>	1,328	19.5	1.6	0.0	0.0	0.0	0.0	0.0	78.9	80.5	23.0
<i>Block Group 2</i>	2,080	11.8	0.0	0.0	0.0	0.0	0.0	0.0	88.2	88.2	44.0
<i>Block Group 3</i>	1,335	11.4	2.5	0.0	0.0	0.0	0.0	1.0	85.1	88.6	32.2
<i>Census Tract 130.02</i>											
<i>Block Group 1</i>	2,228	7.4	0.0	0.0	0.7	0.0	0.0	0.0	92.0	92.6	34.8
<i>Block Group 2</i>	1,442	5.2	0.0	0.0	0.0	0.0	0.0	0.0	94.8	94.8	18.3
<i>Block Group 3</i>	697	5.2	0.0	0.0	0.0	0.0	0.0	0.0	94.8	94.8	22.2
<i>Census Tract 130.03</i>											
<i>Block Group 1</i>	2,081	4.1	0.8	0.3	0.0	0.0	0.0	0.1	94.7	95.9	44.4
<i>Census Tract 130.04</i>											
<i>Block Group 1</i>	942	6.2	0.0	0.0	0.0	0.0	0.0	0.0	93.8	93.8	16.9
<i>Block Group 2</i>	844	21.0	0.0	0.0	0.7	0.0	0.0	0.0	78.3	79.0	13.6
<i>Block Group 3</i>	865	2.9	0.0	0.0	0.0	0.0	0.0	0.0	97.1	97.1	29.9
<i>Census Tract 131.02</i>											
<i>Block Group 1</i>	808	16.3	0.0	0.0	0.0	0.0	0.0	0.0	83.7	83.7	7.6
<i>Block Group 2</i>	3,713	10.0	0.0	0.0	0.6	0.0	0.0	0.0	89.4	90.0	27.2
<i>Census Tract 131.04</i>											
<i>Block Group 1</i>	1,710	6.2	0.0	0.0	0.4	0.0	0.0	0.0	93.4	93.8	22.9
<i>Block Group 2</i>	843	17.8	0.0	0.0	0.6	0.0	0.0	2.0	79.6	82.2	10.2
<i>Block Group 3</i>	1,069	0.3	0.0	0.0	0.0	0.0	0.0	0.0	99.7	99.7	41.0
<i>Census Tract 131.06</i>											

Rio Grande LNG, LLC
 Rio Grande LNG Project
 CP16-454-000

Response to February 3, 2022 Data Request

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<i>Block Group 1</i>	1,739	2.4	0.0	0.0	0.0	0.0	0.0	0.0	97.6	97.6	56.2
<i>Block Group 2</i>	1,407	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	48.0
<i>Block Group 3</i>	1,195	6.2	0.0	0.0	1.0	0.0	0.0	1.8	91.0	93.8	23.3
<i>Census Tract 132.03</i>											
<i>Block Group 1</i>	1,098	4.4	0.0	0.0	0.0	0.0	0.0	0.0	95.6	95.6	29.9
<i>Block Group 2</i>	998	1.1	0.0	0.0	0.0	0.0	0.0	0.0	98.9	98.9	30.7
<i>Census Tract 132.04</i>											
<i>Block Group 1</i>	1,202	5.2	0.0	0.0	0.0	0.0	0.0	0.0	94.8	94.8	50.3
<i>Block Group 2</i>	884	0.0	0.0	0.0	0.0	0.0	2.3	0.0	97.7	100.0	30.0
<i>Census Tract 132.05</i>											
<i>Block Group 1</i>	1,786	0.7	0.0	0.0	0.0	0.0	0.0	0.0	99.3	99.3	12.4
<i>Block Group 2</i>	1,732	1.9	0.0	0.0	0.0	0.0	0.0	0.0	98.1	98.1	28.3
<i>Census Tract 132.06</i>											
<i>Block Group 1</i>	3,258	1.3	0.0	0.0	0.0	0.0	0.0	0.0	98.7	98.7	41.8
<i>Census Tract 132.07</i>											
<i>Block Group 1</i>	3,227	4.8	0.0	0.0	0.0	0.0	0.0	0.0	95.2	95.2	43.6
<i>Block Group 2</i>	1,885	3.1	0.0	0.0	0.0	0.0	0.0	0.0	96.9	96.9	26.3
<i>Census Tract 133.03</i>											
<i>Block Group 1</i>	1,083	6.6	0.0	0.0	1.5	1.5	0.0	0.0	90.4	93.4	0.0
<i>Block Group 2</i>	2,996	2.8	0.0	0.0	0.0	0.0	0.0	0.0	97.2	97.2	31.9
<i>Census Tract 133.05</i>											
<i>Block Group 1</i>	848	4.2	0.0	0.0	0.0	0.0	0.0	0.0	95.8	95.8	26.5
<i>Block Group 2</i>	1,500	0.5	0.0	0.0	0.0	0.0	0.0	0.0	99.5	99.5	10.1
<i>Block Group 3</i>	2,360	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	33.3
<i>Census Tract 133.06</i>											
<i>Block Group 1</i>	1,027	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	24.4
<i>Block Group 2</i>	1,566	0.7	0.0	0.0	0.0	0.0	0.0	0.0	99.3	99.3	39.8
<i>Census Tract 133.07</i>											
<i>Block Group 1</i>	1,026	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	33.1

Rio Grande LNG, LLC
 Rio Grande LNG Project
 CP16-454-000

Response to February 3, 2022 Data Request

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Block Group 2	732	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	49.5
Census Tract 133.08											
Block Group 1	2,213	0.8	0.0	0.0	0.0	0.0	0.0	0.0	99.2	99.2	43.7
Block Group 2	1,336	2.2	0.0	0.0	0.0	0.0	0.0	0.0	97.8	97.8	38.6
Census Tract 133.09											
Block Group 1	1,529	0.3	0.0	0.0	0.0	0.0	0.0	0.0	99.7	99.7	38.2
Block Group 2	1,320	0.2	0.0	0.0	0.0	0.0	0.0	0.0	99.8	99.8	31.2
Census Tract 134.01											
Block Group 1	1,773	1.1	1.2	0.5	0.0	0.0	0.0	0.0	97.2	98.9	47.1
Block Group 2	623	6.7	0.0	0.0	0.0	0.0	0.0	0.0	93.3	93.3	45.3
Census Tract 134.02											
Block Group 1	656	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	47.9
Block Group 2	656	11.4	0.0	0.0	0.0	0.0	0.0	0.0	88.6	88.6	20.7
Block Group 3	687	0.0	0.0	0.0	0.4	0.0	0.0	0.0	99.6	100.0	37.4
Census Tract 135											
Block Group 1	999	23.4	0.8	0.0	1.6	0.0	0.0	0.0	74.2	76.6	0.0
Block Group 2	774	4.7	0.0	0.0	0.0	0.0	0.0	0.0	95.3	95.3	33.2
Census Tract 136											
Block Group 1	161	8.7	0.0	0.0	0.0	0.0	0.0	0.0	91.3	91.3	0.0
Block Group 2	1,113	6.9	0.7	0.0	0.0	0.0	0.0	0.0	92.4	93.1	22.2
Block Group 3	943	4.8	0.0	0.0	0.0	0.0	0.0	0.0	95.2	95.2	36.1
Block Group 4	622	5.3	0.0	0.0	0.0	0.0	0.2	0.0	94.5	94.7	41.9
Census Tract 137											
Block Group 1	821	4.1	0.0	0.0	0.0	0.0	0.0	0.0	95.9	95.9	26.5
Block Group 2	581	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	41.0
Block Group 3	748	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	57.0
Block Group 4	1,892	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	57.5
Census Tract 138.01											
Block Group 1	616	1.9	0.0	0.0	0.0	0.0	0.0	0.0	98.1	98.1	57.1

Rio Grande LNG, LLC
 Rio Grande LNG Project
 CP16-454-000

Response to February 3, 2022 Data Request

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Block Group 2	1,815	3.8	4.3	0.0	0.0	0.0	0.5	0.0	91.4	96.2	70.8
Census Tract 138.02											
Block Group 1	845	0.9	0.0	0.0	0.0	0.0	0.0	0.0	99.1	99.1	46.6
Block Group 2	397	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	42.6
Block Group 3	1,948	8.9	0.6	0.0	0.0	0.0	0.0	0.0	90.6	91.1	48.3
Census Tract 139.01											
Block Group 1	668	3.6	0.0	0.0	0.0	0.0	0.0	0.0	96.4	96.4	43.6
Block Group 2	1,988	2.8	0.0	0.0	0.0	0.0	0.0	0.0	97.2	97.2	38.3
Census Tract 139.02											
Block Group 1	1,298	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	30.0
Block Group 2	1,707	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	47.3
Block Group 3	1,211	3.5	0.0	0.0	1.4	0.0	0.0	0.0	95.1	96.5	51.7
Census Tract 139.03											
Block Group 1	2,217	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	52.7
Block Group 2	1,761	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	42.7
Census Tract 140.01											
Block Group 1	570	2.1	0.0	0.0	0.0	0.0	0.0	0.0	97.9	97.9	25.1
Block Group 2	1,245	4.8	1.0	0.0	2.1	0.0	0.0	0.0	92.0	95.2	67.4
Census Tract 140.02											
Block Group 1	1,072	8.2	0.0	0.0	0.4	0.0	0.0	0.8	90.6	91.8	53.5
Block Group 2	1,239	2.0	0.1	0.0	0.0	0.0	0.0	0.0	97.9	98.0	49.8
Census Tract 141											
Block Group 1	5,515	3.6	0.0	0.0	0.0	0.0	0.0	0.0	96.4	96.4	17.9
Block Group 2	2,276	0.6	0.0	0.0	0.0	0.0	0.0	0.0	99.4	99.4	25.3
Block Group 3	3,485	1.5	0.0	0.0	0.0	0.0	0.0	0.0	98.5	98.5	43.9
Block Group 4	1,222	25.5	0.0	0.0	0.0	0.0	0.0	0.0	74.5	74.5	24.8
Census Tract 142											
Block Group 1	4,054	1.3	0.0	0.0	0.0	0.0	0.0	0.0	98.7	98.7	34.4
Block Group 2	1,543	13.6	0.0	0.0	0.0	0.0	0.0	0.0	86.4	86.4	25.2

Rio Grande LNG, LLC
 Rio Grande LNG Project
 CP16-454-000

Response to February 3, 2022 Data Request

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<i>Census Tract 143</i>											
<i>Block Group 1</i>	1,670	7.0	0.0	0.0	0.0	0.0	0.0	0.5	92.5	93.0	52.4
<i>Block Group 2</i>	1,832	1.6	0.0	0.0	0.0	0.0	0.0	0.0	98.4	98.4	35.7
<i>Block Group 3</i>	1,075	10.0	0.0	0.0	0.0	0.0	0.0	0.0	90.0	90.0	35.5
<i>Census Tract 144</i>											
<i>Block Group 1</i>	13,109	4.0	0.8	0.0	2.9	0.0	0.0	0.0	92.3	96.0	12.8
<i>Block Group 2</i>	2,858	5.7	0.0	0.0	0.0	0.0	0.0	0.0	94.3	94.3	6.8
<i>Block Group 3</i>	5,072	7.4	0.0	0.0	2.1	0.0	0.0	0.0	90.6	92.6	32.6
<i>Census Tract 145</i>											
<i>Block Group 1</i>	7,501	5.3	0.3	0.0	0.5	0.0	0.0	1.1	92.9	94.7	22.4
<i>Block Group 2</i>	1,905	10.1	2.3	0.0	5.0	0.0	0.0	0.0	82.5	89.9	28.7
<i>Census Tract 9800.01</i>											
<i>Block Group 1</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Census Tract 9801</i>											
<i>Block Group 1</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Census Tract 9900</i>											
<i>Block Group 0</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Willacy County</i>	21,588	11.2	0.6	0.0	0.0	0.0	0.0	0.0	88.2	88.8	29.0
<i>Census Tract 9503</i>											
<i>Block Group 1</i>	2,116	11.4	0.0	0.0	0.0	0.0	0.0	0.0	88.6	88.6	12.4
<i>Block Group 2</i>	1,498	0.7	0.0	0.0	0.0	0.0	0.0	0.0	99.3	99.3	50.5
<i>Block Group 3</i>	1,647	10.0	0.0	0.0	0.0	0.0	0.0	0.0	90.0	90.0	30.7
<i>Block Group 4</i>	1,673	5.6	0.0	0.0	0.0	0.0	0.0	0.0	94.4	94.4	55.7
<i>Census Tract 9504</i>											
<i>Block Group 1</i>	2,881	16.3	4.1	0.0	0.0	0.0	0.0	0.0	79.5	83.7	41.6
<i>Block Group 2</i>	1,190	0.8	0.0	0.0	0.0	0.0	0.0	0.0	99.2	99.2	18.4
<i>Block Group 3</i>	746	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	16.7
<i>Block Group 4</i>	1,265	23.0	0.0	0.0	0.0	0.0	0.0	0.0	77.0	77.0	16.5
<i>Block Group 5</i>	887	11.5	0.0	0.0	0.0	0.0	0.0	0.0	88.5	88.5	6.1

Rio Grande LNG, LLC
Rio Grande LNG Project
CP16-454-000

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<i>Census Tract 9505</i>											
<i>Block Group 1</i>	1,596	9.5	0.0	0.0	0.0	0.0	0.0	0.0	90.5	90.5	24.7
<i>Block Group 2</i>	1,627	15.7	0.0	0.0	0.0	0.0	0.0	0.0	84.3	84.3	19.0
<i>Census Tract 9506</i>											
<i>Block Group 1</i>	1,062	21.4	0.0	0.0	0.0	0.0	0.0	0.0	78.6	78.6	32.0
<i>Block Group 2</i>	1,127	0.6	0.0	0.0	0.0	0.0	0.0	0.0	99.4	99.4	24.3
<i>Census Tract 9507</i>											
<i>Block Group 1</i>	1,142	29.1	0.0	0.0	0.0	0.0	0.0	0.3	70.7	70.9	37.1
<i>Block Group 2</i>	1,131	6.4	0.0	0.0	0.0	0.0	0.0	0.0	93.6	93.6	28.0
<i>Census Tract 9900</i>											
<i>Block Group 0</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sources:											
Race and Ethnicity Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates, Hispanic or Latino Origin by Race. Table No. B03002. Accessed on February 11, 2022. Available online at:											
https://data.census.gov/cedsci/table?text=B03002&g=0400000US48_0500000US48061%241500000,48489%241500000											
Below Poverty Level Source: U.S. Census Bureau, 2019 ACS Poverty Status in the Past 12 Months by Household Type by Age of Householder. Table No. B17017. Accessed on February 11, 2022. Available online at:											
https://data.census.gov/cedsci/table?q=B17017%3A%20POVERTY%20STATUS%20IN%20THE%20PAST%2012%20MONTHS%20BY%20HOUSEHOLD%20TYPE%20BY%20AGE%20OF%20HOUSEHOLDER&g=0400000US48_0500000US48061%241500000,48489%241500000											
Notes:											
^a Percent total minority is calculated by subtracting the percent of White Alone, non-Hispanic from 100 percent.											
^b Minority or low-income populations exceeding the established thresholds are indicated in bold type and gray shading.											
* Block Groups within Cameron and Willacy counties marked with an asterisk are conservatively included, although they were determined to be further than 50 km from the RGLNG Terminal.											

Rio Grande LNG, LLC
Rio Grande LNG Project
CP16-454-000

Response to February 3, 2022 Data Request

FERC Environmental Information Request

Resource Report 9

2. Provide an update of RG LNG's criteria pollutant (NO_x, CO, SO₂, PM₁₀, PM_{2.5}), volatile organic compound, speciated greenhouse gases (carbon dioxide, methane, and nitrous oxide), and speciated hazardous air pollutant emission rates (in tons per year) based on the most recent design of the RG LNG Terminal. Include emission quantification for all phases of the Project such as construction, commissioning, and operation as well as from stationary and mobile sources. Provide an estimate of commissioning emissions and clarify when the anticipated commissioning would occur. If the anticipated schedule for commissioning overlaps with construction and/or operation, provide an estimate of the combined emissions (as identified above). Provide tables with annual emissions totals during any overlapping phases of the Project. Include supporting calculations, emission factors, fuel consumption rates, vehicle power ratings, utilization rates, and hours of operation. Emission factors should be based on one of the following methodologies: U.S. Environmental Protection Agency (EPA)-certified emission standards, manufacturer data; current EPA AP-42 emission factors; or peer-reviewed studies for the equipment.

Rio Grande LNG, LLC
Rio Grande LNG Project
CP16-454-000

Response to February 3, 2022 Data Request

Rio Grande's Response:

Rio Grande LNG has provided updated emissions based on the change in schedule and project scope. Table 9-1 in **Attachment 1** presents a summary of criteria pollutant, HAP, and GHG emissions by year for construction, commissioning, and normal operations inclusive of stationary and mobile sources. Tables 9-2 through 9-7 summarize criteria pollutant, HAP, and GHG emissions by year for each of the different operations.

Supporting calculations for stationary routine operational emissions, which will normally include the voluntary use of Carbon Capture and Storage (CCS) Systems, are included in **Attachment 2**.

For construction and commissioning, there has been no change in total emissions from mobile and stationary sources from previous FERC reporting. Emissions for these phases were only adjusted to different years based on the change in the projected construction and commissioning schedules.

Operational emissions for the facility were updated based on the reduction from six liquefaction trains to five (approved by FERC on August 13, 2020), as well as the voluntary inclusion of CCS Systems, for which Rio Grande LNG has applied to FERC for approval to incorporate into the design and operation of the facility through a limited amendment to its authorization. The removal of Train 6 resulted in a reduction of all criteria pollutant emissions and the voluntary incorporation of CCS Systems resulted in a reduction of most criteria pollutant emissions, and a greater than 90% reduction in stationary source CO₂e emissions.



March 1, 2022

Mr. Kenneth J. Warn
Environmental Project Manager
Office of Energy Projects
Federal Energy Regulatory Commission
Washington, D.C. 80426

**Re: Rio Grande LNG, LLC Response to FERC Environmental Information Request
Resource Report 9, Comment No. 3 (Updated Refined Air Quality Modeling)**

Dear Mr. Warn:

SLR International Corporation (SLR) is submitting this updated letter on behalf of Rio Grande LNG, LLC (RGLNG) in response to Federal Energy Regulatory Commission's (FERC) Environmental Information Request dated February 3, 2022. This letter and associated attachments provide response to FERC's Resource Report (RR9) Comment No. 3 related to providing updated refined air quality modeling for the subject project.

Comment 3.a

Provide an updated refined air quality model for the RG LNG Terminal that includes a demonstration that emissions of criteria pollutants from the RG LNG Terminal and mobile sources do not result in exceedance of the National Ambient Air Quality Standards (NAAQS), or state standards. Ensure that all emissions from the RGLNG Terminal are reflected in the air quality model inputs and provide all source input parameters (emission rate, stack height, stack temperature, exit velocity, etc.), and justify the bases for any assumptions. Include mobile ship emissions (LNG carrier, tugs, escort vessels) for the air quality model for the moored safety zone. The model should include relevant regional monitoring ambient background data and existing and proposed regional industrial major sources within 50 kilometers of the fence line of the RG LNG Terminal (excluding the Texas LNG Terminal [Docket No. CP16-116-000]).

Rio Grande LNG Response: SLR has prepared an updated refined air quality modeling analysis using the updated project emissions presented in **Attachment 1** of this letter and the current version of the EPA-approved AERMOD modeling system. The updated emissions were combined with the other source input parameters that supported prior modeling analysis submitted to FERC and/or the TCEQ; no assumptions underlying the modeling analysis presented here have been altered. The modeling was conducted consistent with methods and procedures that follow current agency guidance. Since only the emission rates were updated, no other changes were made to the other source input parameters (i.e., stack height, stack temperature, exit velocity). The updated modeling included project-related mobile ship source and off-site competing source inventory,



March 1, 2022
Mr. Kenneth J. Warn
Page 2

where appropriate, that was used in the previous modeling analysis. These sources of emissions have not changed since the previous submittal.

The updated modeling incorporated a more recent 5-year meteorological data set to drive the AERMOD dispersion model. These data were obtained from the TCEQ for Brownsville International Airport for the period 2014-2018. Background air quality concentrations were also updated to the most 3-year period for which data were available and had sufficient annual data completeness. The modeling domain included locations within 50 kilometers (km) of the RGLNG Terminal, consistent with previous analyses submitted for this project.

Results of the updated modeling demonstrate that emissions of criteria pollutants from the RGLNG Terminal and mobile sources do not result in exceedance of the National Ambient Air Quality Standards (NAAQS), or state standards. In terms of significance and measurability, although the modeling indicates potential air quality impacts out to 31 miles (50 km), these impacts are below or approaching the detection limit of state and federally administered NAAQS air quality monitors. Our responses below provide additional details on the results of the study.

Comment 3.b

Include a model of secondarily formed ozone based on background concentrations of ozone and relevant nearby sources. The model should follow guidance provided by the EPA for Region 6, if available.

Rio Grande LNG Response: Secondary impacts using updated project emissions were calculated for ozone following EPA's current Modeled Emission Rates for Precursors (MERPs) guidance and associated databases. The estimated ozone concentration associated with updated project emissions is 1.36 parts per billion (ppb). Following TCEQ guidance, this estimated project impact was added to existing background ozone data representative of the project area. The existing ozone background in the area is 57 ppb, which is the 3-year average of the annual design values measured at the Harlingen Teege air monitoring station (AQ5 ID 48-061-1023) for the years 2018, 2019, and 2020. When the estimated project impact of 1.36 ppb is added to the existing ozone concentrations, the cumulative impact is 58.36 ppb, well below the 8-hour ozone NAAQS of 70 ppb.

Comment 3.c

Provide a table showing the highest predicted concentrations of all criteria pollutants outside the fence line as well as the location of these highest concentrations relative to the RG LNG Terminal. The table should include (1) the modeled concentration that is contributed by the RG LNG Terminal, (2) the modeled



March 1, 2022

Mr. Kenneth J. Warn

Page 3

combined background concentration with industrial sources within 50 kilometers at that location, and (3) the total concentration.

Rio Grande LNG Response: A significant impact analysis was conducted to determine whether ambient air quality impacts due to project emissions result in a significant off-site impact. The significant impact analysis was based on the project sources modeled using emission rates and stack parameters discussed above in Response to Comment No. 3.a. The maximum predicted impacts (highest-first-high) are compared to the significant impact levels (SIL) in **Table 1** below.

Table 1 Results of the Significant Impact Analysis

Pollutant	Averaging Period	UTM East ¹ (m)	UTM North ¹ (m)	Modeled Impact ($\mu\text{g}/\text{m}^3$)	SIL ($\mu\text{g}/\text{m}^3$)	Above SIL?
CO	1-hour	671518.13	2877343.75	22.1	2,000	No
	8-hour	673748.25	2878551.20	8.2	500	No
NO ₂	1-hour	675293.10	2880324.31	6.0	7.5	No
	Annual	673818.13	2879943.75	0.4	1	No
PM ₁₀	24-Hour	673731.48	2878540.85	0.6	5	No
	Annual	673818.13	2879943.75	0.1	1	No
Direct PM _{2.5}	24-Hour	673731.48	2878540.85	0.57	1.2	No
Secondary PM _{2.5}		n/a	n/a	0.08		
Total PM _{2.5}		673731.48	2878540.85	0.65		
Direct PM _{2.5}	Annual	673818.13	2879943.75	0.147	0.2	No
Secondary PM _{2.5}		n/a	n/a	0.004		
Total PM _{2.5}		673818.13	2879943.75	0.15		
SO ₂	1-Hour	675293.10	2880324.31	0.8	7.8	No
	3-Hour	675405.87	2880403.53	0.6	25	No
	24-Hour	675471.38	2880671.03	0.3	5	No
	Annual	675439.63	2880655.57	0.03	1	No

¹ Universal Transverse Mercator (UTM) Zone 14 North American Datum 1983 (NAD83) coordinates

Secondary impacts using updated project emissions were calculated for particulate matter less than 2.5 microns in diameter (PM_{2.5}) following EPA's current MERPs guidance and associated databases.



March 1, 2022

Mr. Kenneth J. Warn

Page 4

The modeling analysis demonstrates that the project will not exceed any of the SILs. Therefore, in accordance with established EPA and TCEQ guidance and policies, the project is deemed to not cause or contribute to any exceedances of the corresponding NAAQS, and no further analyses are required for these pollutants. As such, it is not necessary to prepare a cumulative impact assessment that includes background concentrations and off-site industrial sources within 50 km of the project location.

Comment 3.d

Provide figures showing the concentration isopleths (i.e., concentration plumes), showing the full range of concentrations for all criteria pollutants including ozone for the highest impact scenario. Show the concentration isopleths starting from the RG LNG Terminal and extending to 50 kilometers from the fence line. There should be a separate figure for each criteria pollutant.

Rio Grande LNG Response: See response to Comment 3.e.

Comment 3.e

Provide another set of figures as in (d) with an overlay of the census block groups in the figures. Clearly label areas where there is a modeled exceedance of the NAAQS.

Rio Grande LNG Response: Model-predicted concentration isopleth figures for each pollutant and averaging period are provided in **Attachment 2**. The information presented here is sufficient to address FERC's Comment No. 3.d. Note that since a single concentration of secondarily formed ozone due to project emissions is calculated (see response to FERC Comment 3.b above) for the entire modeling domain, it is not necessary or meaningful to provide a figure showing predicted ozone concentrations.

Comment 3.f

Provide a table (or tables) showing the maximum modeled concentrations of each criteria pollutant within each census block group within 50 kilometers of the RG LNG Terminal fence line.

Rio Grande LNG Response: Tables showing the maximum modeled concentrations of each criteria pollutant within census block groups within 50 km of the RGLNG Terminal are provided in **Attachment 3**. If a census block group is not listed on the table, this is because the geographic size and location of the block group does not allow for a sampling point in the air dispersion model. However, the pollutant levels in these block groups can be interpolated to be very similar to the surrounding block groups listed in **Attachment 3**.



March 1, 2022
Mr. Kenneth J. Warn
Page 5

If you have any questions, please contact Jerry Schafer at (832) 426-2955 or Tim Desselles from SLR International Corporation at (225) 248-6095.

Sincerely,
SLR International Corporation

Tim Desselles, P.E.
Environmental Specialist Services Manager
(225) 288-5250, tdesselles@slrconsulting.com

Patrick McKean, CCM
Principal Scientist
(970) 219-6601, pmckean@slrconsulting.com

cc Jerry Schafer (Rio Grande LNG, LLC)



RIO BRAVO PIPELINE COMPANY, LLC
5400 Westheimer Court
Houston, Texas 77056

June 1, 2022

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: *Rio Bravo Pipeline Company, LLC*
Rio Bravo Pipeline Project, Docket Nos. CP16-455-000 and CP20-481-000
Response to May 2, 2022 and May 10, 2022 Environmental Information Request
OEP/DG2E/Gas Branch 4

Dear Ms. Bose:

On November 22, 2019, the Federal Energy Regulatory Commission (“Commission” or “FERC”) issued an order in Docket No. CP16-455-000 authorizing Rio Bravo Pipeline Company, LLC’s (“Rio Bravo”) Rio Bravo Pipeline Project (“Project”).¹ On June 15, 2020, Rio Bravo filed an abbreviated application to amend the certificate of public convenience and necessity issued by the Commission in the November 22 Order.² In the above referenced proceedings, the Commission issued environmental information requests to Rio Bravo related to the Project on May 2, 2022 and May 10, 2022, requesting responses within thirty (30) days (“May Information Request”).

Rio Bravo hereby submits its responses to the May Information Request. Attachment 1-1 to the responses included herewith contains critical energy infrastructure information (“CEII”) and has been marked “**CONTAINS CRITICAL ENERGY INFRASTRUCTURE INFORMATION—DO NOT RELEASE,**”³ and “**CUI//CEII**”⁴ and should be treated as confidential pursuant to Order No. 630, *et seq.* and be used by the Commission Staff only and not released to the public.⁵ Rio Bravo is submitting this information as CEII because it contains information about the location of critical infrastructure that could be useful to a person planning an attack on aboveground facilities. Rio Bravo requests that this information be treated as CEII for five years, unless re-designated by the CEII Coordinator.

¹ *Rio Bravo Pipeline, LLC*, 169 FERC ¶ 61,131 (2019) (“November 22 Order”).

² *Rio Bravo Pipeline, LP*, Amendment to Certificate of Public Convenience and Necessity, Docket No. CP20-481-000 (Jun. 15, 2020).

³ See 18 C.F.R. § 388.113(d)(ii) (2021).

⁴ See Notice of Document Labelling Guidance for Documents Submitted to or Filed with the Commission or Commission Staff, Accession No. 20170414-3009 (Apr. 14, 2017).

⁵ *Critical Energy Infrastructure Information*, Order No. 630, FERC Stat. & Reg., ¶ 31,140 (2003), 68 Fed. Reg. 9857 (Mar. 3, 2003), *order on reh’g*, Order No. 630-A, 104 FERC ¶ 61,106 (2003), 68 Fed. Reg. 46456 (Aug. 6, 2003).

JA674

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DLNG/LNG2
OEP/DG2E/Gas Branch 4
Rio Grande LNG, LLC
Rio Grande LNG Project
Docket No. CP16-454-000

August 16, 2022

VIA Electronic Mail

David Wochner
Counsel for Rio Grande LNG, LLC
K&L Gates LLP
david.wochner@klgates.com

Re: Environmental Information Request

Dear Mr. Wochner:

The information described in the enclosures is required for the above-mentioned docket to address deficiencies noted in the U.S. Court of Appeals for the D.C. Circuit's August 3, 2021 decision in *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321 (D.C. Cir. 2021), and for staff to conduct additional necessary analysis for the authorized LNG export terminal. **Please file a complete response within 30 days of the date of this letter.** If certain information cannot be provided within this time frame, please indicate which items will be delayed and provide a projected filing date.

File your response in accordance with the provisions of the Commission's Rules of Practice and Procedure. In particular, 18 CFR 385.2005 requires all responses to be filed under oath by an authorized Rio Grande LNG, LLC representative, and 18 CFR 385.2010 (Rule 2010) requires service to each person whose name appears on the official service list for this proceeding.

Electronic filing is encouraged using the Commission's eFiling system (see <https://www.ferc.gov/ferc-online/overview>). When filing documents and maps, prepare separate volumes as outlined on the Commission's website at <https://www.ferc.gov/ceii-filing-guide> and <https://www.ferc.gov/enforcement-legal/ceii/ferc-cui-processes> for labelling controlled unclassified information (CUI). Critical Energy Infrastructure Information (CEII) (e.g., plot plans showing equipment or piping details) and privileged information (PRIV) (e.g., trade secret information; proprietary information) are

JA675

**VIA ELECTRONIC FILING**

August 22, 2022

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

**Re: OEP/DLNG/LNG2
OEP/DG2E/Gas Branch 4
Rio Grande LNG, LLC
Rio Grande LNG Project
Docket No. CP16-454-000
Part 1 Response to August 16, 2022 Environmental Information Request**

Dear Ms. Bose:

On May 5, 2016, Rio Grande LNG, LLC ("RGLNG") filed an application with the Federal Energy Regulatory Commission (the "FERC") for authorization pursuant to Section 3(a) of the Natural Gas Act (the "NGA") to site, construct, and operate a natural gas liquefaction facility and liquefied natural gas ("LNG") export terminal in Cameron County, Texas, along the north embankment of the Brownsville Ship Channel (the "Rio Grande LNG Project" or "Terminal").

On November 22, 2019, FERC issued an order authorizing the construction and operation of the Rio Grande LNG Project (the "Order"). On January 23, 2020, FERC denied requests for rehearing of the Order. On January 19, 2021, FERC denied requests for rehearing of the Order related to design changes approved on August 13, 2020. On November 17, 2021, RGLNG filed with FERC a limited amendment application to its existing NGA Section 3 authorization to incorporate carbon capture and sequestration ("CCS") systems into the approved site and design of the RGLNG Terminal ("CCS Limited Amendment Application"). This application is currently under review by FERC Staff.

On August 3, 2021,¹ the U.S. Court of Appeals for the District of Columbia Circuit ("D.C. Circuit") remanded to FERC for further consideration its authorization of the RGLNG Terminal, citing limited deficiencies in FERC's climate change and environmental justice analyses. The D.C. Circuit did so without

¹ *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321 (D.C. Cir. 2021).

Table 9-1

Year	Total Emissions in tpy											
	NO _x	CO	SO ₂	H ₂ SO ₄	PM ₁₀	PM _{2.5}	HAPs	VOC	CO ₂	CH ₄	N ₂ O	CO ₂ e
2022	12.0	18.6	2.0	0.0	101.2	11.2	0.0	0.2	0.0	0.0	0.0	653.8
2023	69.7	111.4	11.8	0.0	223.1	28.2	0.0	1.8	0.0	0.0	0.0	9,711.0
2024	127.8	174.3	23.5	0.0	170.2	28.2	0.0	1.8	0.0	0.0	0.0	15,235.2
2025	59.3	118.5	10.6	0.0	91.4	14.2	0.0	1.7	0.0	0.0	0.0	9,046.0
2026	3,103.4	1,299.7	4,837.6	0.4	153.3	105.7	9.7	1,247.6	1,603,639.4	82.9	2.1	4,721,787.0
2027	3,390.8	1,677.5	4,847.2	0.9	212.8	191.0	23.1	1,110.5	3,848,734.5	199.0	5.1	6,865,728.0
2028	3,806.4	2,417.4	4,846.3	1.2	254.2	241.0	30.8	1,962.1	5,131,645.9	265.4	6.8	8,496,117.0
2029	4,023.7	2,721.8	4,852.3	1.5	291.8	291.1	38.5	2,032.3	6,414,557.4	331.7	8.5	9,772,548.8

Year	HAPs Emissions in tpy (1)										
	Benzene	Toluene	Ethylbenzene	Xylene	1,3 Butadiene	Acetaldehyde	Acrolein	Formaldehyde	Naphthalene	PAH	Propylene Oxide
2026	0.1	1.2	0.3	0.6	0.0	0.4	0.1	6.6	0.0	0.0	0.3
2027	0.3	2.9	0.7	1.4	0.0	0.9	0.1	15.8	0.0	0.0	0.6
2028	0.4	3.9	0.9	1.9	0.0	1.2	0.2	21.0	0.0	0.1	0.9
2029	0.5	4.8	1.2	2.4	0.0	1.5	0.2	26.3	0.0	0.1	1.1

(1) Only process emissions were speciated for HAPs, these HAP specific emissions do not include HAP emissions from mobile, commissioning, or construction sources

Table 9-5
Process Operation Emissions By Year
Rio Grande LNG

Year	Total Emissions in tpy											
	NO _x	CO	SO ₂	H ₂ SO ₄	PM ₁₀	PM _{2.5}	HAPs	VOC	CO ₂	CH ₄	N ₂ O	CO ₂ e
2022	0	0	0	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0	0	0	0
2024	0	0	0	0	0	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0	0	0	0	0	0
2026	278.09	430.94	7.51	0.37	64.33	64.33	9.57	120.46	1,603,639	82.93	2.14	1,606,350
2027	667.41	1,034.27	18.02	0.89	154.40	154.40	22.96	289.11	3,848,734	199.04	5.13	3,855,240
2028	889.88	1,379.02	24.03	1.19	205.87	205.87	30.62	385.48	5,131,646	265.38	6.84	5,140,320
2029	1112.35	1,723.78	30.04	1.49	257.33	257.33	38.27	481.85	6,414,557	331.73	8.55	6,425,400

Year	HAPs Emissions in tpy										
	Benzene	Toluene	Ethylbenzene	Xylene	1,3 Butadiene	Acetaldehyde	Acrolein	Formaldehyde	Naphthalene	PAH	Propylene Oxide
2026	0.1	1.2	0.3	0.6	0.00	0.4	0.1	6.6	0.01	0.0	0.3
2027	0.3	2.9	0.7	1.4	0.01	0.9	0.1	15.8	0.03	0.0	0.6
2028	0.4	3.9	0.9	1.9	0.01	1.2	0.2	21.0	0.04	0.1	0.9
2029	0.5	4.8	1.2	2.4	0.02	1.5	0.2	26.3	0.05	0.1	1.1



August 19, 2022
Ms. Karla Bathrick
Page 2

and off-site competing source inventory, where appropriate, that was used in the previous modeling analysis. These sources of emissions have not changed since the previous submittal.

The updated modeling incorporated a more recent 5-year meteorological data set to drive the AERMOD dispersion model. These data were obtained from the TCEQ for Brownsville International Airport for the period 2014-2018. Background air quality concentrations were also updated to the most 3-year period for which data were available and had sufficient annual data completeness. The modeling domain included locations within 50 kilometers (km) of the RGLNG Terminal, consistent with previous analyses submitted for this project.

Results of the updated modeling demonstrate that emissions of criteria pollutants from the RGLNG Terminal and mobile sources do not result in exceedance of the National Ambient Air Quality Standards (NAAQS), or state standards. In terms of significance and measurability, although the modeling indicates potential air quality impacts out to 31 miles (50 km), these impacts are below or approaching the detection limit of state and federally-administered NAAQS air quality monitors. Our responses below provide additional details on the results of the study.

Comment 3.b

Include a model of secondarily formed ozone based on background concentrations of ozone and relevant nearby sources. The model should follow guidance provided by the EPA for Region 6, if available.

Rio Grande LNG Response: Secondary impacts using updated project emissions were calculated for ozone following EPA's current Modeled Emission Rates for Precursors (MERPs) guidance and associated databases. The estimated ozone concentration associated with updated project emissions is 1.62 parts per billion (ppb). Following TCEQ guidance, this estimated project impact was added to existing background ozone data representative of the project area. The existing ozone background in the area is 57 ppb, which is the 3-year average of the annual design values measured at the Harlingen Teege air monitoring station (AQ5 ID 48-061-1023) for the years 2018, 2019, and 2020. When the estimated project impact of 1.62 ppb is added to the existing ozone concentrations, the cumulative impact is 58.6 ppb, well below the 8-hour ozone NAAQS of 70 ppb.

Comment 3.c

Provide a table showing the highest predicted concentrations of all criteria pollutants outside the fenceline as well as the location of these highest concentrations relative to the RG LNG Terminal. The table should include (1) the modeled concentration that is contributed by the RG LNG Terminal, (2) the modeled combined background concentration with industrial sources within 50 kilometers at that location, and (3) the total concentration.



August 19, 2022

Ms. Karla Bathrick

Page 3

Rio Grande LNG Response: A significant impact analysis was conducted to determine whether ambient air quality impacts due to project emissions result in a significant off-site impact. The significant impact analysis was based on the project sources modeled using emission rates and stack parameters discussed above in Response to Comment No. 3.a. The maximum predicted impacts (highest-first-high) are compared to the significant impact levels (SIL) in **Table 1** below.

Table 1 Results of the Significant Impact Analysis

Pollutant	Averaging Period	UTM East ¹ (m)	UTM North ¹ (m)	Modeled Impact ($\mu\text{g}/\text{m}^3$)	SIL ($\mu\text{g}/\text{m}^3$)	Above SIL?
CO	1-hour	671518.13	2877343.75	26.2	2,000	No
	8-hour	673765.02	2878561.54	11.0	500	No
NO ₂	1-hour	674718.13	2880143.75	12.5	7.5	Yes
	Annual	675035.22	2880317.90	0.96	1	No
PM ₁₀	24-Hour	673743.83	2878548.28	0.67	5	No
	Annual	673818.13	2879943.75	0.19	1	No
Direct PM _{2.5}	24-Hour	673743.83	2878548.28	0.67	1.2	No
Secondary PM _{2.5}		n/a	n/a	0.12		
Total PM _{2.5}		673743.83	2878548.28	0.79		
Direct PM _{2.5}	Annual	673818.13	2879943.75	0.19	0.2	No
Secondary PM _{2.5}		n/a	n/a	0.006		
Total PM _{2.5}		673818.13	2879943.75	0.196		
SO ₂	1-Hour	672818.13	2877943.75	2.0	7.8	No
	3-Hour	674818.13	2880443.75	1.3	25	No
	24-Hour	674122.71	2879477.55	0.65	5	No
	Annual	674118.13	2879743.75	0.10	1	No

¹ Universal Transverse Mercator (UTM) Zone 14 North American Datum 1983 (NAD83) coordinates

Secondary impacts using updated project emissions were calculated for particulate matter less than 2.5 microns in diameter (PM_{2.5}) following EPA's current MERPs guidance and associated databases.

The modeling analysis demonstrates that the project will not exceed the carbon monoxide (CO), annual nitrogen dioxide (NO₂), particulate matter less than 10 microns in diameter (PM₁₀), PM_{2.5},



August 19, 2022
Ms. Karla Bathrick
Page 4

or sulfur dioxide (SO₂) SILs. Therefore, in accordance with established EPA and TCEQ guidance and policies, the project is deemed to not cause or contribute to any exceedances of the corresponding NAAQS, and no further analyses are required for these pollutants and averaging periods.

Because the maximum predicted project impacts exceed the 1-hour NO₂ SIL, a cumulative 1-hour NO₂ impact analysis was performed. Only receptors that exceeded the 1-hour NO₂ SIL were modeled in the cumulative impact analysis consistent with established EPA and TCEQ guidance. While the furthest distance from the facility for which receptors were significant is approximately 29 kilometers, the cumulative impact analysis included off-site industrial sources within 50 km of the project location consistent with prior modeling analyses submitted to FERC and/or the TCEQ. The background 1-hour NO₂ concentration was updated to the most recent three years of complete data from the Lake Jackson (AQS ID 48-039-1016) monitoring station.

Results of the cumulative 1-hour NO₂ impact analysis are presented in Table 2 and demonstrate that cumulative 1-hour NO₂ impacts will be below the 1-hour NO₂ NAAQS.

Table 2 Results of the Cumulative 1-Hour NO₂ Impact Analysis

UTM East ¹ (m)	UTM North ¹ (m)	Modeled Impact (µg/m ³)	Background Concentration (µg/m ³)	Total Concentration (µg/m ³)	NAAQS (µg/m ³)	Above NAAQS?
674818.13	2880343.75	25.9	33.9	59.8	188	No

¹ Universal Transverse Mercator (UTM) Zone 14 North American Datum 1983 (NAD83) coordinates

Comment 3.d

Provide figures showing the concentration isopleths (i.e., concentration plumes), showing the full range of concentrations for all criteria pollutants including ozone for the highest impact scenario. Show the concentration isopleths starting from the RG LNG Terminal and extending to 50 kilometers from the fenceline. There should be a separate figure for each criteria pollutant.

Rio Grande LNG Response: See response to Comment 3.e.

Comment 3.e

Provide another set of figures as in (d) with an overlay of the census block groups in the figures. Clearly label areas where there is a modeled exceedance of the NAAQS.

Rio Grande LNG Response: RGLNG submitted the requested figures in **Attachment 2** of our March 1, 2022 response letter. While the modeled concentrations have changed slightly with the



August 19, 2022
Ms. Karla Bathrick
Page 5

removal of the carbon capture system (CCS), all pollutants and averaging period, except 1-hour NO₂, remain below their respective SIL and well below their respective NAAQS. Therefore, the information provided in **Attachment 2** of our March 1, 2022 response letter has not substantially changed and the conclusion that predicted air quality concentrations of these pollutants will not exceed the NAAQS has not changed.

Because removal of the CSS has increased predicted 1-hour NO₂ concentrations to be above its SIL, cumulative modeling was performed as described in updated response to Comment 3.c above. SLR used the AERMOD model to predict impacts at those receptors that were over the SIL, consistent with EPA and TCEQ guidance. The resulting receptor grid is discontinuous and therefore does not lend itself to displaying meaningful isopleths that accurately represent the predicted air concentrations. Rather, RGLNG is providing in **Attachment 2** of this letter a color-coded map of the modeled receptor points that contains a legend indicating the level of total concentration (including the background concentration and emission sources within 50 kilometers of RGLNG) overlaid on each census block. The 1-hour NO₂ NAAQS will not be exceeded in any census block.

Comment 3.f

Provide a table (or tables) showing the maximum modeled concentrations of each criteria pollutant within each census block group within 50 kilometers of the RG LNG Terminal fenceline.

Rio Grande LNG Response: RGLNG submitted the requested tables in **Attachment 3** of our March 1, 2022 response letter. While the modeled concentrations have changed slightly with the removal of the CCS, each census block's predicted level of air pollution will be at or below the concentrations shown in **Table 1** and **Table 2**. Therefore, the information provided **Attachment 3** of our March 1, 2022 response letter has not substantially changed and the conclusion that predicted air quality concentrations for all pollutants will not exceed the NAAQS has not changed.

If you have any questions, please contact Jerry Schafer at (832) 426-2955 or Tim Desselles from SLR International Corporation at (225) 248-6095.

Appendix 9.A: RGLNG with CCS Systems - Emissions Summary Table

Hazardous Air Pollutants (HAPs)

[illegible]

Note: This represents the reduction in emissions whilst the CCS Systems are in operation. RGLNG intends to voluntarily apply CCS Systems to the Terminal and for these systems to be operational for most of the time. However, there will be situations when RGLNG Terminal emissions will revert back to the current permitted TCEQ values. These situations include commissioning and start-up, safety system overrides, as well as shutdowns and maintenance.

Appendix 9.A: RGLNG with CCS Systems - Emissions Summary Table

Greenhouse Gases (GHGs)

Emission Source	27 MTPA Export (5 Trains)		27 MTPA Export (CCS)		27 MTPA Export (5 Trains)		27 MTPA Export (CCS)		27 MTPA Export (5 Trains)		27 MTPA Export (CCS)		27 MTPA Export (5 Trains)		27 MTPA Export (CCS)	
	CO ₂	tons/yr	CO ₂	tons/yr	CH ₄	tons/yr	CH ₄	tons/yr	N ₂ O	tons/yr	N ₂ O	tons/yr	CO _{2e}	tons/yr	CO _{2e}	tons/yr
Gas Turbines (10)	4,328,224.90	4,328,224.90	0.00	0.00	81.60	81.60	81.60	81.60	8.20	8.20	8.20	8.20	4,332,698.40	4,332,698.40	4,332,698.40	4,332,698.40
CO ₂ Absorbers	0.00	-4,111,813.66	-4,111,813.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-4,111,813.66	-4,111,813.66	-4,111,813.66
Combined GT and Absorber	4,328,224.90	216,411.25	-4,111,813.66	0.00	81.60	81.60	81.60	81.60	8.20	8.20	8.20	8.20	4,332,698.40	220,884.75	4,111,813.66	4,111,813.66
Thermal Oxidizers (5)	1,926,854.07	1,926,854.07	0.00	0.00	3.75	3.75	3.75	3.75	0.40	0.40	0.40	0.40	1,927,059.70	1,927,059.70	0.00	0.00
Sequestration of Thermal Oxidizer	0.00	-1,926,854.07	-1,926,854.07	-3.75	0.00	-3.75	0.00	0.00	-0.40	-0.40	0.00	-0.40	0.00	-1,927,059.70	-1,927,059.70	-1,927,059.70
Ground Flare System	902.94	902.94	0.00	0.00	0.12	0.12	0.12	0.12	0.00	0.00	0.00	0.00	4,296.04	4,296.04	0.00	0.00
Ground Flare System (MSS Worst Case Year)	149,415.00	149,415.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	149,415.00	149,415.00	0.00	0.00
Essential Generators	847.80	847.80	0.00	0.00	0.52	0.52	0.52	0.52	0.00	0.00	0.00	0.00	860.68	860.68	0.00	0.00
Emergency Firewater Pumps	80.96	80.96	0.00	0.00	0.04	0.04	0.04	0.04	0.00	0.00	0.00	0.00	82.20	82.20	0.00	0.00
BOG Vent	5,179.80	5,179.80	0.00	0.00	16.89	16.89	16.89	16.89	0.01	0.01	0.01	0.01	5,604.48	5,604.48	0.00	0.00
Terminal Fugitives	0.00	0.00	0.00	0.00	215.34	215.34	215.34	215.34	0.00	0.00	0.00	0.00	5,383.44	5,383.44	0.00	0.00
Total	6,411,505.47	372,837.75	-6,038,667.73	-1.2%	318.26	314.51	318.26	314.51	8.61	8.21	8.61	8.21	6,425,399.94	386,526.59	-6,038,873.36	-94.0%

Note: This represents the reduction in emissions whilst the CCS Systems are in operation. RGLNG intends to voluntarily apply CCS Systems to the Terminal and for these systems to be operational for most of the time. However, there will be situations when RGLNG Terminal emissions will revert back to the current permitted TCEQ values. These situations include commissioning and start-up, safety system overrides, as well as shutdowns and maintenance.



Rio Grande LNG Project – Terminal

Docket No. CP16-454-000

Response to August 16, 2022 FERC Environmental Information Request

Part 2 of 2 (Responses to Items Related to Emergency Response Planning)

Rio Grande LNG, LLC

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Rio Grande LNG, LLC
Rio Bravo Pipeline Company, LLC

Docket Nos. CP16-454-000
CP16-454-003
CP16-455-000
CP16-455-002

NOTICE SEEKING PUBLIC COMMENT ON
RESPONSES TO INFORMATION REQUESTS

(September 30, 2022)

On May 5, 2016, Rio Grande LNG, LLC (Rio Grande) filed an application under section 3 of the Natural Gas Act (NGA)¹ and Part 153 of the Commission's regulations² for authorization to construct and operate a liquefied natural gas (LNG) export terminal on the north embankment of the Brownsville Ship Channel in Cameron County, Texas. At the same time, Rio Bravo Pipeline Company, LLC (Rio Bravo) filed an application under NGA section 7(c)³ and Part 157 of the Commission's regulations⁴ for authorization to construct and operate a natural gas pipeline system that would deliver gas to the terminal for liquefaction and export. On November 22, 2019, the Commission authorized Rio Grande's and Rio Bravo's respective proposals, subject to conditions.⁵ On August 3, 2021, the U.S. Court of Appeals for the D.C. Circuit (D.C. Circuit) partially remanded, but did not vacate, the Commission's authorization.⁶ On August 16, 2022, and August 31, 2022, Commission staff issued environmental information requests to Rio Grande in order to address deficiencies noted in the D.C. Circuit's August 3, 2021 decision. Rio

¹ 15 U.S.C. § 717b.

² 18 C.F.R. pt. 153 (2021).

³ 15 U.S.C. § 717f(c).

⁴ 18 C.F.R. pt. 157 (2021).

⁵ *Rio Grande LNG, LLC*, 169 FERC ¶ 61,131 (2019), *order on reh'g*, 170 FERC ¶ 61,046 (2020).

⁶ *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321, 1332 (D.C. Cir. 2021) (remanding orders without vacatur for the Commission to redress deficiencies regarding its analyses of project impacts on climate change and environmental justice communities).

Grande responded to Commission staff's information requests on August 22, 2022, and September 15, 2022.⁷ Similarly on May 2 and May 10, 2022, Commission staff issued information requests to Rio Bravo to address deficiencies noted in the D.C. Circuit's August 3, 2021 decision, to which Rio Bravo provided responses on June 1, 2022.

By this notice, Commission staff requests public comments on the issues addressed in Rio Grande's and Rio Bravo's responses to staff's above-referenced information requests of May 2, May 10, August 16, and August 31, 2022, regarding environmental justice communities, visual impacts, air quality modeling, and emergency planning. Any person wishing to comment on these issues may do so.

To ensure that your comments within the scope of this notice are timely and properly recorded, please submit your initial comments no later than **October 21, 2022**. Reply comments are due no later than **November 4, 2022**.

There are three methods you can use to submit your comments to the Commission. Please carefully follow these instructions so that your comments are properly recorded. The Commission encourages electronic filing of comments and has staff available to assist you at (866) 208-3676 or FercOnlineSupport@ferc.gov.

- 1) You can file your comments electronically using the [eComment](#) feature, which is located on the Commission's website (www.ferc.gov) under the link to [FERC Online](#). Using eComment is an easy method for submitting brief, text-only comments on a project;
- 2) You can file your comments electronically by using the [eFiling](#) feature, which is located on the Commission's website (www.ferc.gov) under the link to [FERC Online](#). With eFiling, you can provide comments in a variety of formats by attaching them as a file with your submission. New eFiling users must first create an account by clicking on "[eRegister](#)." You will be asked to select the type of filing you are making; a comment on a particular project is considered a "Comment on a Filing";

⁷ Rio Grande submitted a partial response on August 22, 2022, addressing questions related to air modeling and environmental justice.

- 3) You can file a paper copy of your comments by mailing them to the Commission. Be sure to reference the project docket number (CP16-454-000 and CP16-455-000) on your letter. Submissions sent via the U.S. Postal Service must be addressed to: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Room 1A, Washington, DC 20426. Submissions sent via any other carrier must be addressed to: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 12225 Wilkins Avenue, Rockville, MD 20852.

Additional information about the project, including copies of the above-referenced information requests and responses, are available from the Commission's Office of External Affairs, at **(866) 208-FERC**, or on the FERC website at www.ferc.gov using the [eLibrary](#) link. Click on the eLibrary link, click on "General Search" and enter the docket number in the "Docket Number" field. Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FercOnlineSupport@ferc.gov or (866) 208-3676, or for TTY, contact (202) 502-8659. The eLibrary link also provides access to the texts of all formal documents issued by the Commission, such as orders, notices, and rulemakings.

Debbie-Anne A. Reese,
Deputy Secretary.

UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY
FEDERAL ENERGY REGULATORY COMMISSION

Rio Grande LNG, LLC	)	Docket Nos.	CP16-454-000
Rio Bravo Pipeline Company, LLC	)		CP16-454-003
	)		CP16-455-000
	)		CP16-455-002

Comments on Responses to Information Requests

I. Introduction

The United States Court of Appeals for the District of Columbia determined that the Federal Energy Regulatory Commission (“FERC”) inadequately analyzed the impacts to environmental justice communities of the Rio Grande and Rio Bravo projects (collectively “Project”).¹ The *Vecinos* court remanded to FERC without vacatur and ordered FERC to adequately analyze impacts to environmental justice communities. FERC has now begun that process by requesting information from Rio Grande and Rio Bravo and has requested public comment on the responses provided.

As explained in more detail below, the beginning of FERC’s new analysis suggests that FERC will continue to improperly analyze the impacts of the Project to environmental justice communities. FERC has asked the wrong questions and received inadequate information in response to its requests. FERC has, so far, created a public participation process that systematically excludes the environmental justice communities that it is supposed to be protecting through this process. The undersigned commenters urge FERC to course correct in order to ensure a legally adequate environmental justice analysis that protects the health, wellbeing, and safety of the environmental justice communities that are in the vicinity of the Project.

¹ See *Vecinos para el Bienestar de la Comunidad Costera v. Federal Energy Regulatory Commission*, 6 F.4th 1321, 1331 (D.C. Cir. 2021).

II. To Date, Outreach to Environmental Justice Communities Has Been Inadequate

To properly analyze environmental justice, FERC must obtain “meaningful community representation in the process.”² FERC must “be aware of the diverse constituencies within any particular community” and “have complete representation of the community as a whole.”³ “[C]ommunity participation must occur as early as possible if it is to be meaningful.”⁴ Among the constituencies that must be included in the process is tribal representation of any impacted tribes.⁵

To do this, FERC must go beyond its typical public outreach practices. Instead, FERC must determine the necessary “adaptive or innovative approaches to overcome linguistic, institutional, cultural, economic, historical, or other potential barriers to effective participation” in its decisionmaking process.⁶ These approaches can include translation of major documents, opportunities to comment through other means than written communication, and creating materials specifically designed to garner the involvement of different constituencies.⁷

Here, the proposed project will have significant impacts on environmental justice communities.⁸ The City of Port Isabel, the closest city to the project area is 82.7% Hispanic/Latino and 30.3% of the population lives below the poverty line.⁹ Similarly, the population of Cameron County, where the project site is located, is

² Council on Environmental Quality, Environmental Justice: Guidance Under The National Environmental Policy Act 9 (1997) [*hereinafter* “CEQ 1997 Guidance”] (attached).

³ *Id.*

⁴ *Id.*

⁵ *Id.*

⁶ *Id.* at 13. *Accord* EPA, Guidance on Considering Environmental Justice During the Development of Regulatory Actions 32-35 (2015) [*hereinafter* “EPA 2015 Guidance”]

⁷ CEQ 1997 Guidance.

⁸ An area may contain an environmental justice population (1) if more than 50% of the population in a potentially affected area are people of color or the percentage of people of color in a specific area exceed the percentage of the general population, or (2) if there are affected populations with incomes below the statistical poverty thresholds. CEQ 1997 Guidance at 25.

⁹ U.S. Census Bureau, *Quick Facts: Cameron County, Port Isabel, Texas*, available at

<https://www.census.gov/quickfacts/fact/table/cameroncountytexas,TX,portisabelcitytexas/PST045221>. (Last accessed Sept. 28, 2022) (attached).

90% Hispanic/Latino and 24.4% live below the poverty line.¹⁰ By comparison, less than 15% of the entire population of Texas lives below the poverty line and only 40.2% of the State's population is Hispanic/Latino.¹¹

Accordingly, as explained in more detail below, FERC has, so far, failed to utilize the public outreach and engagement practices necessary to ensure adequate participation of the impacted environmental justice communities.

a. FERC Has Not Provided Translated Versions of the Underlying Documents

If the Project were to go forward, it would be constructed in an area where a majority of the population speaks Spanish at home and 25.2% speak English less than very well.¹² Despite this, FERC has not provided translated versions of the Applicants' responses to the information requests underlying this request for public comment. This has the obvious effect of cutting the 25.2% of people in the project area that speak English less than very well out of FERC's decisionmaking process.

This isn't only a problem because it is plainly wrong to cut an entire population out of decisionmaking that will affect them, it is wrong because it will inevitably lead to bad decisionmaking.¹³ Longstanding guidance recognizes that it is crucial for agencies to analyze environmental and health data "in light of any additional qualitative or quantitative information gathered through the public participation process."¹⁴ This is because "background data" on environmental justice communities, including "empirical data, based on verifiable observations or

¹⁰ *Id.*

¹¹ *Id.*

¹² U.S. Census Bureau, American Community Surveys: DP02 Selected Social Characteristics, Port Isabel, *available at* https://data.census.gov/cedsci/table?tid=ACSDP5Y2020.DP02&g=0400000US48_1600000US4858892&hidePreview=true (Last viewed Sept. 28, 2022) (attached). *See also* U.S. Census Bureau, American Community Surveys: DP02 Selected Social Characteristics, Cameron County, *available at* https://data.census.gov/cedsci/table?tid=ACSDP5Y2020.DP02&g=0400000US48_0500000US48061&hidePreview=true. (Last viewed Sept. 28, 2022) (attached).

¹³ *See* EPA, Final Guidance For Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses at pdf 46 (1998) [*hereinafter* EPA 1998 Guidance] (attached) ("Adequate public participation is crucial to incorporating environmental justice considerations into EPA's NEPA actions, both to enhance the quality of the analyses and to ensure that potentially affected parties are not overlooked and excluded from the process.").

¹⁴ CEQ 1997 Guidance at 14.

experience” is crucial to an agency’s environmental justice analysis.¹⁵ Additionally, environmental justice populations “in the affected environment may hold an opposing technical or scientific view (which can be based on several sources, including the community) from agencies regarding specific impacts and/or methods of analysis,” which “may warrant discussion in a NEPA document.”¹⁶

Ultimately, by excluding people that speak English less than very well, FERC will ensure that it misses all of these data points concerning this affected population. FERC, for example, will have no way whether this population “may be differently affected by past, present, or reasonably foreseeable future impacts than the general population.”¹⁷ Or, whether the effects of the Project on this population would be amplified by “past exposure histories, and social factors.”¹⁸ FERC is in essence, deciding to deny itself the opportunity to be educated and to have the community “help identify the means to identify alternatives and/or mitigate the impacts.”¹⁹

FERC must ensure that this population is not systemically excluded from FERC’s decisionmaking. FERC must, at least, provide translated documents to allow for meaningful participation. And FERC must go beyond limiting participation to written comments. It must provide public meetings that allow for meaningful participation from people who speak English less than well and other environmental justice communities. Without taking these steps, FERC will not be able to perform an adequate environmental justice analysis.

b. FERC Must Consult With the Carrizo Comecrudo Tribe of Texas

Longstanding guidance affirms the importance of working with tribes that will be impacted by projects. The Carrizo Comecrudo Tribe of Texas will be impacted here because the Project will occupy and impact lands sacred to the Tribe. For example, the Garcia Pasture Site is a sacred site to the Tribe and features human burial sites, village ruins, rock art, and shell working areas.²⁰ The Project site is adjacent to the Garcia Pasture Site and would impact the ability of the

¹⁵ Interagency Working Group on Environmental Justice & NEPA Committee, Promising Practices for EJ Methodologies in NEPA Reviews 29 (2016) [*hereinafter* “Promising Practices”] (attached).

¹⁶ *Id.* at 30.

¹⁷ *Id.*

¹⁸ *Id.* at 31.

¹⁹ EPA 1998 Guidance at pdf 54.

²⁰ Garcia Pasture, WMF.Org, <https://www.wmf.org/project/garcia-pasture> (Last Visited October 11, 2022) (attached).

Carrizo Comecrudo Tribe of Texas to use the site for its traditional purposes. Additionally, the Project site would occupy additional sacred lands of the Carrizo Comecrudo Tribe of Texas. However, despite the impact the Project will have on the Carrizo Comecrudo Tribe of Texas, FERC has not consulted or engaged with the Carrizo Comecrudo Tribe of Texas.

None of this satisfies FERC's environmental justice obligations. FERC is specifically required to seek input from impacted tribal populations whether or not a particular tribe is federally recognized.²¹ By not engaging with the Carrizo Comecrudo Tribe of Texas, FERC has failed to satisfy its environmental justice obligations or to perform an adequate environmental justice analysis. FERC must immediately consult with the Carrizo Comecrudo Tribe of Texas concerning the impacts that the Project will have on sacred sites.

c. FERC Must Provide Additional Time to Comment on Texas LNG's Responses, Do More Public Outreach, and Provide Additional Means for the Public to Comment

In addition to the more specific issues discussed above, the overall issue here is that FERC has not tailored this comment period to ensure the meaningful participation of any of the environmental justice communities that would be impacted by the Project if it went forward. FERC issued this notice on September 30, 2022 with comments due on October 21, 2022, a 21-day comment deadline. On the same day, FERC issued a parallel notice in docket nos. CP16-116-000 and CP16-116-002, requesting public comment on similar issues but concerning the nearby Texas LNG project. Those comments are due the same day as these comments. Additionally, when both of these notices were issued, the deadline for scoping comments concerning Rio Grande LNG's carbon capture and storage proposal was ongoing.

The subject matter of these comments is highly technical in nature. The Applicants' responses are jargon laden and concern subject matter such as air emissions and emergency response planning. Clearly, the responses were not written for a general audience, they were written for subject matter experts.

²¹ See EPA 1998 Guidance at pdf 75 (Agencies must work with federally recognized tribes on a government-to-government basis "as well as with any affected or interested indigenous person(s) as public stakeholders"). *Contra* Final EIS at 4-160. *Accord* Promising Practices at 10 ("[A]gencies should conduct meaningful engagement efforts ... specifically designed to reach indigenous tribal populations and organizations.")

Accordingly, FERC has created a public participation structure tailor made to leave out the environmental justice communities that will be impacted. FERC is supposed to use “adaptive and innovative approaches both to public outreach ... and participation” but instead of doing that, FERC has buried these environmental justice communities under multiple deadlines seeking comment on several complex issues rendering meaningful participation impossible.²² FERC has not provided the information it seeks comment on in a format that is concise, understandable, and readily accessible to the public.²³ As a result, FERC is not likely to be able to perform an adequate environmental justice analysis, contradicting the D.C. Circuit’s *Vecinos* decision.

That alone renders FERC’s apparent attempt to comply with *Vecinos* insufficient, but the infirmities of FERC’s process so far does not stop there. FERC has not so much as suggested that it is going to provide these environmental justice communities any opportunity to participate outside the opportunity to provide written comments. As explained in several guidance documents and by common sense, this decision by FERC is not going to lead to adequate participation of members of environmental justice communities.²⁴ And, in turn, will inevitably lead to FERC not properly analyzing the impacts to these environmental justice communities. FERC should course correct now, rather than when it is already too late. FERC should provide alternative methods of public participation including multiple town hall style public hearings held at various locations tailored for access by environmental justice communities and at several different times to allow people with different work and life schedules to attend.

Ultimately, environmental justice analysis is as much a process as it is a way to ensure substantive policy ends. As the Federal Interagency Working Group on Environmental Justice & NEPA Committee recently explained, structuring the environmental review process to ensure meaningful participation of members of environmental justice communities is an end in itself.²⁵ FERC is currently failing to ensure an adequate process.

²² Promising Practices at 8.

²³ *Cf.* CEQ 1997 Guidance at 33.

²⁴ *See, e.g., Id.* at 13.

²⁵ *See* Promising Practices at 8-11.

III. Rio Grande LNG Has Not Responded to FERC's Request for Environmental Information Regarding Air Emissions Modeling and the Information it has Provided is Insufficient

FERC asked that Rio Grande LNG provide an updated table that showed the “Radius of Impact, the maximum modeled concentrations of each criteria pollutant within each census block group within 50 kilometers of the Rio Grande LNG Terminal fenceline, and the maximum impact for each NAAQS averaging period outside the fenceline.”²⁶ That modeling was required to include “impacts for Rio Grande LNG Terminal sources only (including mobile sources); and impacts of Rio Grande LNG Terminal sources plus ambient background concentrations combined with industrial sources within 50 kilometers at that location (excluding the Texas LNG facility).”²⁷ The modeling is also supposed to include a narrative explaining how the modeling was performed, as well as all assumptions, and inputs.²⁸

Rio Grande LNG did not provide the requested information. It only provided expected emissions from its facility and concluded that because all but one criteria pollutant did not exceed a significant impact level (“SIL”), no further impacts analysis was needed for those pollutants.²⁹ Rio Grande then, without producing any modeling or explanation to back up its assertion, concludes that there will be no violation of the 1-hr NO₂ NAAQS (the only criteria pollutant it models to exceed the SIL) in census blocks within 50 miles of the facility.³⁰

The information that Rio Grande produced is not responsive to FERC's request and is directly contradicted by modeling produced by Texas LNG. FERC cannot evaluate the full impacts of the project without the requested information and should not proceed with an environmental impact statement until Rio Grande LNG provides the requested information.

a. Rio Grande LNG Has Not Provided Background Concentrations of Criteria Air Pollutants

FERC specifically requested that Rio Grande LNG provide a table of background concentrations of criteria air pollutants in census blocks within a 50-mile radius of the facility.³¹ Rio Grande does not provide this for any criteria pollutant. It provides no explanation why it cannot provide these background concentrations for all but one of the remaining pollutants. For NO₂ Rio Grande LNG claims that because the modeling is “discontinuous” it does not lend itself to being

²⁶ FERC Environmental Information Request, No. 2 (Aug. 16, 2022).

²⁷ *Id.*

²⁸ *Id.*

²⁹ Rio Grande LNG, Part 1 Response to August 16, 2022 Environmental Information Request, 7 (Aug. 22, 2022).

³⁰ *Id.*

³¹ FERC Environmental Information Request, No. 2 (Aug. 16, 2022).

represented in a table by census block group.³² But, FERC did not ask Rio Grande LNG to explain why it wouldn't do what it was asked. It sought specific information. This information was provided by Texas LNG's in response to a similar request from FERC.³³ FERC should not proceed with an analysis of impacts until Rio Grande LNG produces the requested modeling.

b. Rio Grande LNG Should Explain its Maximum Modeled Concentration Tables

Even though Rio Grande LNG has not produced all the information requested by FERC, it did produce a maximum modeled concentration table for criteria pollutants that extends to census block groups within 50 kilometers of the facility.³⁴ Although there is no legend for the table, the concentration quantities are so low, that these could figures could not be mistaken for the background concentrations and so must be the predicted concentration from Rio Grande LNG's emissions.³⁵ FERC should ask Rio Grande to update this table with both background emissions from the full inventory of sources within 50 kilometers of the facility and to provide a legend describing what is included in its modeled predicted maximum concentrations.

FERC should also ask for an explanation of Rio Grande LNG's assumptions in modeling its predicted maximum concentrations. While this information is important to understanding what the modeling demonstrates, in this instance it is also necessary to explain why Rio Grande's maximum concentrations are significantly less than Texas LNG's modeled maximum concentrations despite Rio

³² Rio Grande uses the term "isopeths" instead of referencing the geographical boundaries set by FERC. *See* Rio Grande LNG, Part 1 Response to August 16, 2022 Environmental Information Request, 7 (Aug. 22, 2022).

³³ *See* Texas LNG, Supplemental Response to Aug. 16, 2022 Environmental Information Request, Attachment 9-1: Maximum Modeled Concentrations of Criteria Pollutants within Census Block Groups: September 2022 Update. (Attached). To be clear, while Texas LNG did provide this requested information, there are significant issues with Texas LNG's responses to FERC's similar environmental information requests in those dockets that are addressed in separate comments concerning Texas LNG's responses.

³⁴ Rio Grande LNG, Response to the May 2, 2022 EIR, Attachment 3 (May 20, 2022). Accession # 20220520-5124.

³⁵ *Compare* Rio Grande LNG, Response to the May 2, 2022 EIR, Attachment 3 (May 20, 2022). Accession # 20220520-5124, *with* Texas LNG, Supplemental Response to FERC's Environmental Information Request, Attachment 9-1 Maximum Modeled Concentrations of Criteria Pollutants within Census Block Groups: September 2022 Update. (Attached). (Texas LNG's modeling includes both predicted background concentrations and concentrations from its own emissions. A comparison with Rio Grande LNG's maximum background concentrations demonstrates the predicted figures must be Rio Grande's own contribution.)

Grande being a larger source of emissions. Table 1 below shows the expected emissions of CO and NO₂, from each facility from 2026 to 2029.

Table 1. Predicted Emissions of CO and NO₂, for Rio Grande LNG and Texas LNG 2026-2029			
<i>Pollutant</i>	<i>Year</i>	<i>Rio Grande LNG Total Emissions in tons per year³⁶</i>	<i>Texas LNG Total Emissions in tons per year³⁷</i>
CO	2026	1,299.7	169.38
	2027	1,677.5	221.41
	2028	4,846.3	330.07
	2029	4,852.3	276.76
NO₂	2026	3,103.4	329.88
	2027	3,390.8	270.75
	2028	3,806.4	250.37
	2029	4,023.7	207.97

Rio Grande LNG has substantially higher emissions estimates than Texas LNG for CO and NO₂. Despite the overwhelmingly higher estimated emissions from the Rio Grande facility demonstrated in Table 1, Rio Grande LNG has modeled substantially lower maximum concentration levels for the census block groups within 50 kilometers of the facility fenceline. Table 2 shows the predicted emissions concentrations from each source for four of the census block groups nearest the facilities.

³⁶ Rio Grande LNG, Part 1 Response to August 16, 2022 Environmental Information Request, Attachment 1, Table 9-1 (Aug. 22, 2022) Accession # 20220822-5167.

³⁷ Texas LNG, Supplemental Response to Feb. 3, 2022 Environmental Information Request, Table 9-1 (Apr. 29, 2022) Accession # 20220502-5075. (Attached)

Table 2. Maximum Modeled Concentrations of CO and NO₂ for Rio Grande LNG and Texas LNG in Select Block Groups within 50 Kilometers of each facility				
<i>Census Tract and Block Group³⁸</i>	<i>Pollutant & Time Period</i>	<i>Rio Grande LNG Maximum Modeled Emissions in µg/m³³⁹</i>	<i>Texas LNG Total Maximum Modeled Emissions during hoteling in µg/m³⁴⁰</i>	<i>Texas LNG Total Maximum Modeled Emissions during maneuvering in µg/m³⁴¹</i>
CT 012700 BG 2	CO – 1Hr	22.07	172.2	147.2
	CO – 8-Hr	7.64	61.7	27.1
	NO ₂ – 1Hr	6.03	125	37
	NO ₂ – Annual	.128	1.25	.136
CT 012304 BG 1	CO – 1Hr	15.21	62.8	70
	CO – 8-Hr	2.37	4.8	4.3
	NO ₂ – 1Hr	4.87	10.3	7.5
	NO ₂ – Annual	.0153	.025	.0117
CT 012304 BG 2	CO – 1Hr	14.26	135.8	157.7
	CO – 8-Hr	2.17	58.1	11.9
	NO ₂ – 1Hr	4.81	135.9	39.8
	NO ₂ – Annual	.013	.322	.131

³⁸ We would have liked to compare the emissions concentrations modeled for Census Tract 14200, Block Group 1. This is the block group where each facility is located. However, it does not seem that Rio Grande LNG modeled that Census Tract, or if it did, it is mislabeled. FERC should ask Rio Grande LNG to correct that oversight.

³⁹ Rio Grande LNG, Response to May 2, 2022 EIR, Attachment 3: Maximum Modeled Concentration Tables (May 20, 2022) Accession # 20220520-5124.

⁴⁰ Texas LNG, Supplemental Response to Aug. 16, 2022 Environmental Information Request, Attachment 9-1: Maximum Modeled Concentrations of Criteria Pollutants within Census Block Groups: September 2022 Update. (Attached).

⁴¹ Texas LNG, Supplemental Response to Aug. 16, 2022 Environmental Information Request, Attachment 9-1: Maximum Modeled Concentrations of Criteria Pollutants within Census Block Groups: September 2022 Update. (Attached).

Comment in CP16-454-000, CP16-454-003, CP16-455-000, & CP16-455-002

CT 012304 BG 3	CO – 1Hr	20.04	55.7	58.3
	CO – 8-Hr	2.8	4.8	4.2
	NO ₂ , – 1Hr	5.31	11	6.8
	NO ₂ , – Annual	.01797	.0171	.00831

In almost every instance, save the occasional NO₂ annual emissions, Rio Grande LNG models that its maximum concentration contributions to the census block groups closest to the facility will be significantly less than Texas LNG's. This defies logic given the vast difference in the quantity of emissions predicted from the facilities. FERC must demand an explanation of the modeling.

c. Rio Grande LNG Improperly Relies on SILs to Justify its Failure to Respond to FERC's Request

Instead of providing background concentrations for all criteria pollutants as requested by FERC, Rio Grande LNG concluded that because emissions of CO, annual NO₂, PM_{2.5}, and PM₁₀ would not exceed significant impact levels “the project is deemed not to cause or contribute to any exceedances of the corresponding [NAAQS], and no further analyses are required for these pollutants and averaging periods.”⁴²

Using Significant Impact Levels (“SIL”) to determine whether this project causes or contributes to exceedances of the NAAQS is improper. The Clean Air Act unambiguously prohibits the use of SILs to demonstrate that a project would not cause or contribute to a NAAQS exceedance.⁴³ FERC must still review Rio Grande

⁴² Rio Grande LNG, Response to Aug. 16, 2022 Environmental Information Request, 7 (Aug. 22, 2022) Accession # 20220822-5167.

⁴³ See, e.g., *Alabama Power Co. v. Costle*, 636 F.2d 323, 362 (D.C. Cir. 1979) (Congress specifically used the terms “cause” and “contribute” together to ensure that the Prevention of Significant Deterioration program would prevent increments and the NAAQS from being exceeded by considering all possible violations or contributions to violations); *Bluewater Network v. EPA*, 370 F.3d 1, 13 (D.C. Cir. 2004) (interpreting nearly identical language in the Clean Air Act to mean that the term “contribute” “has no inherent connotation as to magnitude or importance of the relevant ‘share’ in the effect; certainly it does not incorporate any ‘significance’ requirement.”); *Sierra Club v. EPA*, 705 F.3d 458, 465-66 (D.C. Cir. 2013) (vacating EPA’s PM 2.5 SILs regulation because EPA lacks “authority to exempt sources from the requirements of the” Clean Air Act and the regulation “simply states that the demonstration required under [section] 165(a)(3) is deemed to have been made if a proposed source or modification’s air quality impact is below the SIL.”). See also *Sierra Club v. EPA*, 955 F.3d 56, 63-64 (D.C. Cir. 2020) (Affirming that the Court lacks jurisdiction to vacate a non-binding policy document as part of a facial challenge but explaining that “[t]he SILs Guidance is not

LNG's contribution to declining air quality in the region, regardless of whether Rio Grande's projected emissions exceed a SIL. That is the only way for FERC to fulfill its duties under NEPA to disclose the full impacts of this project to the public and to determine whether this project is in the public interest as is required by the Natural Gas Act.

d. Rio Grande LNG's Conclusion That There Will Be No 1-hour NO₂ NAAQS Exceedances is Contradicted by Filings Made by Texas LNG

Although Rio Grande LNG did not provide any modeled background concentrations of for 1-hr NO₂,⁴⁴ it concluded that "the 1-hour NO₂ NAAQS will not be exceeded in any census block."⁴⁵ This conclusion is directly contradicted by modeling produced by Texas LNG which demonstrates NAAQS exceedances in multiple census block groups for both the 1-hour NO₂ and the 1-hour PM₁₀.⁴⁶ Texas LNG's modeling also demonstrates exceedances of the 1-hour PM NAAQS.⁴⁷ Rio Grande LNG must explain why its conclusions are inconsistent with other modeling provided to FERC.

e. Rio Grande LNG's Emissions Will Have Disproportionately High and Adverse Impacts on Environmental Justice Communities

Rio Grande LNG's maximum modeled concentrations and modeled predictions concentrations for 1-hour NO demonstrate that impacts from emissions from its facility will extend throughout the region and at least 50 kilometers from

sufficient to support a permitting decision—simply quoting the SILs Guidance is not enough to justify a permitting decision without more evidence in the record, including technical and legal documents.”).

⁴⁴ Rio Grande did produce a map showing predicted NO dispersion and concentrations over the region. Rio Grande LNG, Response to Aug. 16, 2022 Environmental Information Request, Attachment 2: Model-Predicted Concentration Figure (Aug. 22, 2022) Accession # 20220822-5167.

⁴⁵ Rio Grande LNG, Response to Aug. 16, 2022 Environmental Information Request, 7 (Aug. 22, 2022) Accession # 20220822-5167.

⁴⁶ Texas LNG, Supplemental Response to Aug. 16, 2022 Environmental Information Request, Attachment 9-1: Maximum Modeled Concentrations of Criteria Pollutants within Census Block Groups: September 2022 Update. (Attached) (Texas LNG's modeling shows exceedances of the 1-hour NO₂ NAAQS in CT 10800 BG 4, CT 12304 BG 2, CT 12401 BG 1, CT 126.07 BG 1, CT 12700 BG 2, and CT 14200 BG 1 and exceedances of the 1-hour PM₁₀ NAAQS in CT 10100 BG 2, CT 010800 BG 4, CT 011400 BG 4, CT 12700 BG 2, and CT 14200 BG 1.

⁴⁷ *Id.*

Comment in CP16-454-000, CP16-454-003, CP16-455-000, & CP16-455-002

the facility.⁴⁸ The impacts of these emissions should be highly scrutinized as they will be concentrated on Environmental Justice communities; of all the census block groups within 50 kilometers of the facility, only eight do not qualify as Environmental Justice communities.⁴⁹ Criteria pollutants, including particulate matter and nitrogen dioxide are recognized as pollutants for which there is no threshold of exposure that adequately protects human health.⁵⁰ As discussed above, there is evidence that in several census block groups, there are predicted exceedances of the 1-hour NAAQS for three criteria pollutants and that Rio Grande LNG's emissions will contribute to those exceedances. However, given that these pollutants are recognized as causing harm even below the NAAQS, impacts of from an increased concentration of each will increase the risk of harm to exposed populations, regardless of whether the emission concentrations exceed the NAAQS.

In the case of Rio Grande LNG these emissions will have disproportionately high and adverse impacts on environmental justice communities because all but eight of the census block groups (which have people living in them) which were included in the within 50 kilometers of the facility, and thus will be exposed to emissions from the facility, have either a higher rate of Hispanic/Latino individuals or low-income people than the general population of the State of Texas, or both. This alone demonstrates there will be disproportionately high and adverse impact on environmental justice communities from Texas LNG's air emissions.⁵¹

Moreover, as a general matter, projects that cause or contributes to exceedances of the NAAQS are not in the public interest. The NAAQS is "based on such criteria and allowing an adequate margin of safety, are requisite to protect public health."⁵² Exceedances of the NAAQS will contribute to worsening respiratory and cardiovascular health of exposed populations.⁵³ The health of local communities should not be jeopardized for the expansion of liquefied natural gas exports.

⁴⁸ See Rio Grande LNG, Response to May 2, 2022 EIR, Attachment 3: Maximum Modeled Concentration Tables (May 20, 2022) Accession # 20220520-5124; see also Rio Grande LNG, Response to Aug. 16, 2022 Environmental Information Request, Attachment 2: Model-Predicted Concentration Figure (Aug. 22, 2022) Accession # 20220822-5167.

⁴⁹ See Rio Grande LNG, Response to May 2, 2022 Environmental Information Request, Table 5.1: Minority Populations by Race and Low-Income Populations within 50 kilometers of RGLNG Terminal.

⁵⁰ See *Am. Trucking Ass'n, Inc. v. EPA*, 283 F.3d 355, 359-360 (D.C. Cir. 2002); 75 Fed. Reg. 6474 at 6500 (Feb. 9, 2010)

⁵¹ See e.g. CEQ, *Environmental Justice Guidelines Under the National Environmental Policy Act*, 25 (Dec. 1. 1997).

⁵² 42 CFR 7409(b)(1).

⁵³ While an exceedance of the NAAQS would certainly have an adverse impact on environmental justice communities, an exceedance of the NAAQS is not a necessary condition for the presence of a disproportionate impact on environmental justice communities. See CEQ 1997 Guidance at 10.

Texas LNG's modeling also demonstrates that many these census block groups are already exposed to NAAQS exceedances for NO₂, PM_{2.5}, and PM₁₀ even before the construction and operation of Texas LNG and Rio Grande LNG.⁵⁴ Moreover, the two census block groups closest to the Rio Grande LNG facility, Tract 12700, Block Group 2, and Tract 14200, Block Group 1 are in the 99th percentile for the environmental justice index for PM_{2.5}, and in the 93rd and 96th percentile (respectively) in the State.⁵⁵ The construction and operation of an additional pollution source in areas that are populated by environmental justice communities that are already exposed to emissions levels that exceed the standard set to protect human health is a serious environmental justice concern and at a minimum demands the consideration of alternative sites.

Finally, the risks of exposure on EJ populations can also be heightened by factors specific to those populations.⁵⁶ As previously raised in this docket, the EJ populations in this area are less likely to have access to medical infrastructure including hospitals and insurance, have high concentrations of young and elderly populations, and low-income populations may likely have worse respiratory health than the general population of Texas. FERC should consider these factors before determining whether the impacts of air emissions are significant.⁵⁷

IV. Rio Grande LNG Has Not Provided Sufficient Information for FERC To Analyze the Impacts of Offsite Parking Locations on Environmental Justice Communities

FERC will not be able to properly analyze impacts caused by Rio Grande LNG's offsite locations to environmental justice communities. FERC requested data on census block groups within one mile of "offsite parking locations from which

⁵⁴ Texas LNG, Supplemental Response to Aug. 16, 2022 Environmental Information Request, Attachment 9-1: Maximum Modeled Concentrations of Criteria Pollutants within Census Block Groups: September 2022 Update. (Attached)

⁵⁵ EJ Screen Report Blockgroup 480610127002 (Attached); EJ Screen Report Blockgroup 480610142021 (Attached) (Please note that EPA's EJ Screen mistakenly labels blockgroup 480610142021 as 480610142022. *Compare* Texas Education Agency, Census Block Group Map, available at <https://hub.arcgis.com/datasets/TEA-Texas::census-block-group-map/explore?location=26.031312%2C-97.291719%2C11.96>. (Screen shot attached).

⁵⁶ CEQ, *Environmental Justice Guidelines Under the National Environmental Policy Act*, 9 (Dec. 1. 1997).

⁵⁷ "Agency consideration of impacts on low-income populations, minority populations, or Indian tribes may lead to the identification of disproportionately high and adverse human health or environmental effects that are significant and that otherwise would be overlooked." CEQ, *Environmental Justice Guidelines Under the National Environmental Policy Act*, 10 (Dec. 1. 1997).

workers would be transported.”⁵⁸ There is no basis for limiting the analysis of these impacts on environmental justice communities to a one-mile radius. Instead, by limiting the analysis in this manner, FERC is ensuring that it will run headlong into one of the issues that rendered its environmental justice analysis inadequate in *Vecinos*. There, the D.C. Circuit determined that FERC analyzed environmental justice impacts within an arbitrarily determined geographic radius and, therefore, FERC’s environmental justice analysis was inadequate.⁵⁹ FERC appears to be doing the same thing here. Instead, FERC must analyze impacts within a rationally determined geographic radius.

In addition to asking the wrong question, FERC also does not have sufficient data to perform an adequate analysis of these impacts. Rio Grande LNG provided almost no helpful information. For example, when asked to discuss impacts to environmental justice communities from the use of Rio Grande LNG’s offsite locations, Rio Grande LNG provided a non-answer. Rio Grande did acknowledge that environmental justice communities would experience impacts,⁶⁰ but failed to seriously discuss those impacts or assess whether environmental justice communities will experience disproportionate impacts from the offsite locations. Instead, Rio Grande LNG claimed that the nearest residence to one offsite location is more than three miles away, which does not mean that environmental justice communities will not be impacted by the offsite location, and explained that individuals traveling on SH-48 will experience impacts from the offsite location, which is not an analysis of impacts to environmental justice communities.⁶¹ Similarly, with respect to the other offsite location, Rio Grande LNG noted that the nearest residence is about .3 miles away but claims that the offsite location is “located in an industrial area” and, therefore concludes, that use of the offsite location will be consistent with current usage.⁶² However, again, Rio Grande LNG has not analyzed impacts to environmental justice communities with respect to this offsite location. It is plainly irrelevant whether the offsite area is located in an area where industrial uses are occurring. Use of that offsite location can still cause impacts to environmental justice communities by causing, *e.g.*, increased traffic,

⁵⁸ Rio Grande LNG, LLC, Rio Grande LNG Project Docket No. CP16-454-000 Part 1 Response to August 16, 2022 Environmental Information Request at 16, Accession 20220822-5167.

⁵⁹ *Vecinos*, 6 F.4th at 1330-31.

⁶⁰ Rio Grande LNG, LLC, Rio Grande LNG Project Docket No. CP16-454-000 Part 1 Response to August 16, 2022 Environmental Information Request at 16, Accession 20220822-5167.

⁶¹ *Id.*

⁶² *Id.*

noise, and pollution. Unfortunately, because Rio Grande LNG only provided FERC with a non-responsive answer to FERC's question, FERC cannot yet properly analyze these impacts to environmental justice communities.⁶³

Along with providing a telling non-answer, Rio Grande LNG urged FERC to rely on stale information while assessing these impacts to environmental justice communities. When asked to provide the average daily traffic of the roads that would provide primary access to the offsite locations, Rio Grande LNG pointed to data from a three-year-old traffic survey of SH-48.⁶⁴ The traffic survey itself is now stale and FERC must ensure that adequate, current information is acquired. Moreover, Rio Grande LNG's response ignores the primary access road to the Port Isabel Temporary Storage Area, which according to the map provided by Rio Grande LNG in these responses, is not on SH-48.⁶⁵ Without current and complete data, FERC also cannot yet properly analyze these impacts.

Finally, upon request, Rio Grande LNG explained that it would utilize certain mitigation measures to "minimize traffic impacts on local roadways."⁶⁶ However, there is no indication that any of these mitigation measures will be effective.⁶⁷ Nor is there any analysis of whether these mitigation measures will be effective at blunting any disproportionate impacts that will be experienced by environmental justice communities. FERC cannot just assume that these measures will be effective in general or effective at mitigating disproportionate impacts to environmental justice communities and, instead, must analyze their effectiveness.

⁶³ What little relevant information Rio Grande LNG *did* provide FERC indicates that these impacts will indeed occur to environmental justice communities. *See id.* at 20.

⁶⁴ *Id.* at 24.

⁶⁵ *Id.* at 20.

⁶⁶ *Id.* at 26.

⁶⁷ *Cf. O'Reilly v. U.S. Army Corps of Eng'rs*, 477 F.3d 225, 231-34 (5th Cir. 2007) (Corps violated NEPA by concluding that mitigation measures would reduce impacts to wildlife habitat and wetland function to insignificance, where Corps provided only cursory details of how those mitigation measures would work); *Nat'l Audubon Soc. v. Hoffman*, 132 F.3d 7, 16-17 (2d Cir. 1997). Additionally, the mitigation measures provided by Rio Grande LNG seem to concern only traffic impacts on SH-48. Rio Grande LNG, LLC, Rio Grande LNG Project Docket No. CP16-454-000 Part 1 Response to August 16, 2022 Environmental Information Request at 26, Accession 20220822-5167. FERC must ensure that mitigation measures are designed to mitigate *all* traffic impacts, not just those that will occur at SH-48.

V. Rio Grande LNG Has Not Provided Enough Information to Analyze the Sufficiency of its Emergency Response Plan

Rio Grande LNG has not provided enough information to analyze the sufficiency of its emergency response plan. As Rio Grande LNG acknowledged in its response to FERC's request, it has not yet developed an emergency management plan.⁶⁸ Therefore, there is no plan to comment on.

However, the information provided by Rio Grande LNG does paint a worrisome picture. For example, Rio Grande LNG acknowledges that provision must be made for persons in the project area that speak English less than well by claiming it will develop "a community outreach and emergency response pamphlet" in both English and Spanish.⁶⁹ However, Rio Grande LNG provides no information so much as suggesting that its emergency response plan will include any further measures ensuring the safety of Spanish speakers or those who speak English less than very well. This is unacceptable. While Rio Grande LNG should certainly formulate a pamphlet in both English and Spanish, a pamphlet alone is not enough. FERC must ensure that the emergency response itself is conducted in both languages and that people impacted by any emergency that speak Spanish or English less than well are safe. This means, *inter alia*, disaster response personnel are prepared to engage with people in Spanish and emergency response messaging is provided in Spanish. Anything less obviously creates an extremely dangerous situation for this population and for emergency response personnel.

More broadly, despite the clear impacts of the Project on environmental justice communities, there is no indication of any plans to ensure that the emergency response plan would mitigate any disproportionately high and adverse effects of the project experienced by project area environmental justice communities. Nor is there any indication that appropriate outreach and engagement measures will be used to ensure the involvement of environmental justice communities in the development of the emergency management plan.⁷⁰ As explained above, failure to ensure the meaningful participation of environmental justice communities will ensure an emergency response plan that places

⁶⁸ Rio Grande LNG, LLC, Rio Grande LNG Project Docket CP16-454-000 Part 2 Response to August 16, 2022 Environmental Information Request at 26, Accession 20220915-5122.

⁶⁹ *Id.* at 26.

⁷⁰ *See supra* § II.

disproportionate risk on environmental justice communities.⁷¹ FERC must act to prevent this failure.

VI. The Information Requested by FERC is Inadequate to Ensure an Adequate Environmental Justice Analysis of the Impacts of the Rio Bravo Pipeline System

FERC has not requested the right information to assess the impacts of the Rio Bravo pipeline system on Environmental Justice Communities. Credit where it's due, FERC's request did elicit information showing that 95.2% of the census block groups impacted by the pipeline system are environmental justice communities.⁷² However, none of FERC's subsequent requests elicited useful information on how these communities will be impacted by the Rio Bravo pipeline system.

FERC requested information on visual impacts, but limited the request to "visual impacts ... on sensitive receptors ... *from the meter stations*."⁷³ The Rio Bravo pipeline system will cause visual impacts beyond those that will occur at the meter stations. For example, construction of the Rio Bravo pipeline system will cause visual impacts "by vegetation clearing along the right-of-way and construction of the pipeline facilities."⁷⁴ These impacts would be most prominent "where the pipeline parallels or crosses roads, trails, or prominent offsite observation points and other places where the right-of-way may be seen by passing motorists or recreationists."⁷⁵ Such areas include the Lower Rio Grande Valley National Wildlife Refuge and the Laguna Atascosa National Wildlife Refuge. The pipeline system crosses within .25 miles of both.⁷⁶ Accordingly, requesting visual impact information only for the areas immediately surrounding metering sites, renders FERC's analysis of visual impacts on environmental justice communities inadequate. FERC must cast a much wider net, inclusive of all visual impacts on environmental justice communities.

Additionally, while FERC requested updated air emissions information from Rio Grande LNG to analyze environmental justice impacts,⁷⁷ FERC did not make a

⁷¹ For example, FERC must ensure that any emergency response plan is effective despite the presence of a significant number of people that live below the poverty line.

⁷² Rio Bravo Pipeline Company, LLC, Rio Bravo Pipeline Project, Docket Nos. CP16-455-000 and CP20-481-000 Response to May 2, 2022 and May 10, 2022 Environmental Information Requests at pdf 12, Accession 20220601-5340 (Response 5).

⁷³ *Id.* at pdf 15 (Response 7) (emphasis added).

⁷⁴ Final Environmental Impact Statement at 5-12.

⁷⁵ *Id.*

⁷⁶ *Id.* at 4-193.

⁷⁷ *See supra* § III.

similar request of Rio Bravo. Instead, FERC merely requested demographic information of census block groups within 50 kilometers of the compressor station.⁷⁸ FERC must actually analyze how the air emissions from the compressor station will impact environmental justice communities and whether those impacts will be disproportionately high and adverse.⁷⁹

Ultimately, FERC simply has not asked enough of Rio Bravo. And FERC's requests suggest that its subsequent analysis of Rio Bravo's environmental justice impacts will be too narrow and inadequate.

VII. FERC Cannot Credit Rio Grande LNG's Carbon Capture and Storage Proposal in its NEPA Analysis or Natural Gas Act Public Interest Determination

While Rio Grande LNG's Carbon Capture and Storage ("CCS") proposal has its own FERC docket,⁸⁰ it is important to note here that FERC cannot credit Rio Grande LNG's CCS proposal in its NEPA analysis or any Natural Gas Act public interest determinations. Rio Grande LNG has made no commitment to install or ultimately operate CCS equipment, a point that it has underscored in its response to FERC's recent environmental information request.⁸¹ Nor has Rio Grande LNG committed to capturing any given fraction of carbon dioxide emissions. Thus, FERC cannot credit CCS in its NEPA analysis or Natural Gas Act public interest determination.

All that Rio Grande states is that it "intends" to operate CCS equipment most of the time.⁸² Rio Grande gives startup, shutdown, or malfunction events as an example of when CCS might not be operated.⁸³ But Rio Grande does not assert that startup, shutdown, or malfunction are the *only* times that CCS might not be operated, and, here, Rio Grande explains that it can simply decide not to operate

⁷⁸ Rio Bravo Pipeline Company, LLC, Rio Bravo Pipeline Project, Docket Nos. CP16-455-000 and CP20-481-000 Response to May 2, 2022 and May 10, 2022 Environmental Information Requests at pdf 11 (Response 4).

⁷⁹ Similarly, FERC requested demographic information of census blocks within 1 mile of other aboveground facilities. *See id.* There is no reason to think impacts from the other aboveground facilities will only be felt within one mile. FERC must ensure that it analyzes impacts within the appropriate geographic range and must consider broader ranges with respect to Request 4. *See supra* note 59.

⁸⁰ *See* Docket No. CP22-17-000.

⁸¹ *See* Rio Grande LNG, LLC, Rio Grande LNG Project Docket No. CP16-454-000 Part 1 Response to August 16, 2022 Environmental Information Request at 4, Accession 20220822-5167.

⁸² *E.g.*, Resource Report 1-8, 9-8, *in* Docket No. CP22-17 (attached).

⁸³ *Id.*

CCS for any reason that it wants.⁸⁴ And the considerable operating cost of running CCS (in energy, amine sorbent, etc.) provides a powerful financial incentive to deactivate the system outside of startup, shutdown, and malfunction contexts. Other facilities, such as coal fired power plants in the northeast, have routinely installed pollution control equipment but then deactivated that equipment when they were financially incentivized to do so.⁸⁵

Moreover, Rio Grande is incorrect in previously suggesting that there may be circumstances in which it is *required* to operate liquefaction equipment despite non-operation of CCS. Specifically, Rio Grande argued that it may operate CCS “in order to meet its legally binding, contractual commitments to its liquefaction customers.”⁸⁶ As a threshold matter, Rio Grande has not reached a final investment decision and has few contracts or customers; Rio Grande has not presented evidence of any such agreements. And the terms of any contracts Rio Grande does enter can, of course, be specified by Rio Grande. For example, utility contracts routinely include provisions that relieve a part of obligations due to *force majeure*, malfunction, or other similar circumstance.

Accordingly, because of Rio Grande’s past statements in CP22-17 and its statements in response to FERC’s August 16, 2022 Environmental Information Request, FERC cannot credit Rio Grande LNG’s CCS proposal as it analyzes the impacts of the Project.⁸⁷

⁸⁴ See Rio Grande LNG, LLC, Rio Grande LNG Project Docket No. CP16-454-000 Part 1 Response to August 16, 2022 Environmental Information Request at 4, Accession 20220822-5167.

⁸⁵ See Ozone Transport Commission Stationary and Area Source Committee, Largest Contributors Working Group, *Comparison of CSAPR Allowance Prices to Cost of Operating SCR controls* (Apr. 15, 2015), available at <https://otcair.org/upload/Documents/Reports/Draft%20Final%20Allowance%20v%20SCR%20operating%20costs%2004-15-15.pdf> (attached).

⁸⁶ Application at 8 in Docket No. CP22-17-000 (attached).

⁸⁷ See, e.g., *New York v. Nuclear Regulatory Comm’n*, 681 F.3d 471, 478-79 (D.C. Cir. 2012), *O’Reilly*, 477 F.3d at 231-34 (5th Cir. 2007), *Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F.3d 1372, 1381 (9th Cir. 1998).

VIII. Conclusion

The undersigned commenters appreciate the opportunity to submit these comments and urge FERC to make the necessary changes to properly analyze the impacts to environmental justice communities. Ultimately, FERC must deny any outstanding applications and vacate any existing approvals. This project cannot go forward.

Respectfully submitted,

/s/ Thomas Gosselin

Thomas Gosselin

Sierra Club

P.O. Box 4998

Austin, TX 78765

(424) 346-3276

tom.gosselin@sierraclub.org

Attorney for Sierra Club

/s/ Jennifer Richards

Jennifer Richards

Texas Rio Grande Legal Aid

4920 N. IH-35

Austin, TX 78751

(512) 374-2758

jrichards@trla.org

*Attorney for Shrimpers and Fishermen
of the RGV and Vecinos para el
Bienestar de la Comunidad Costera*

/s/ Juan B. Mancias

Juan B. Mancias

onebigjuan@gmail.com

*On Behalf of Carrizo Comecrudo Tribal
Nation of Texas*

/s/ Ranjana Bhandari

Ranjana Bhandari

liveablearlington@gmail.com

On Behalf of Liveable Arlington

/s/ Joanie Steinhaus

Joanie Steinhaus

joanie@tirn.net

*On Behalf of Turtle Island Restoration
Network*

/s/ Roishetta Ozane

Roishetta Ozane

roishetta@gmail.com

*On Behalf of The Vessell Project of
Louisiana*

/s/ John Beard, Jr.

John Beard, Jr.

john.beard901456@outlook.com

*On Behalf of Port Arthur Community
Action Network*

/s/ Juan Parras

Juan Parras

parras.juan@gmail.com

*On Behalf of Texas Environmental
Justice Advocacy Services*

/s/ Mary Lovell

Mary Lovell

mary@ran.org

On Behalf of Rainforest Action Network

/s/ Collin Rees

Collin Rees

collin@priceofoil.org

On Behalf of Oil Change International

/s/ James Hiatt

James Hiatt

james@labucketbrigade.org

On Behalf of Louisiana Bucket Brigade

/s/ Jim Walsh

Jim Walsh

jwalsh@fwwatch.org

On Behalf of Food and Water Watch

/s/ Luke Metzger

Luke Metzger

luke@environmenttexas.org

On Behalf of Environment Texas

/s/ Shelley Livaudais

Shelley Livaudais

*On Behalf of Texas Public Interest
Research Group Education Fund*

/s/ Nichelle Taylor

Nichelle Taylor

ntaylor@gnoha.org

*On Behalf of Greater New Orleans
Housing Alliance*

/s/ Cheryl Barnds

Cheryl Barnds

risewiththesea@gmail.com

*On Behalf of RapidShift Network &
Honor the Earth*

/s/ Stefanie Klass

Stefanie Klass

stefanie.klass@gmail.com

On Behalf of CatholicNetwork US

/s/ Shannon Francis

Shannon Francis

sfrancis@spiritofthesun.org

On Behalf of Spirit of the Sun

/s/ Anna Ramirez

Anna Ramirez

afrancis@hotmail.com

*On Behalf of Southwest Organization
for Sustainability*

/s/ Fred Kirsch

Fred Kirsch

cforse.fred@gmail.com

*On Behalf of Community for
Sustainable Energy*

/s/ Harmony Cummings

Harmony Cummings

harmonycharlee1@gmail.com

*On Behalf of Green House Collaboration
Center*

/s/ Marie Venner

Marie Venner

marie@vennerconsulting.com

*On Behalf of Business for a Livable
Climate*

/s/ Renée Chacon

Renée Chacon

reneemchacon@gmail.com

On Behalf of Womxn from the Mountain

/s/ Jeff Hart

Jeff Hart

jeffshart@gmail.com

*On Behalf of Save the Environmental
Protection Agency*

/s/ Maura Stephens

Maura Stephens

maurastephens1@gmail.com

*On Behalf of System Change Not
Climate Change*

/s/ Phillip Beck

Phillip Beck

beck.phillips@gmail.com

On Behalf of Indivisible Ambassadors

/s/ Matt Leonard

Matt Leonard

matt@oilgasaction.org

*On Behalf of Oil and Gas Action
Network*

/s/ Sheila Serna

Sheila Serna

sheila@rgisc.org

*On Behalf of Rio Grande International
Study Center*

/s/ Michael Esealuka

Michael Esealuka

michaelesealuka@healthygulf.org

On Behalf of Healthy Gulf

/s/ Emma Guevara

Emma Guevara

emmacguevara89@gmail.com

*On Behalf of South Texas
Environmental Justice Network*

/s/ Martha Carleton

Martha Carleton

calamitymj@yahoo.com

On Behalf of 350 Austin

/s/ Jules Blank

Jules Blank

jules@seedingsovereignty.org

On Behalf of Seeding Sovereignty

/s/ Rebekah Sale

Rebekah Sale

rebekahsale@pipelinecenter.org

*On Behalf of Property Rights and
Pipeline Center*

/s/ Rebekah Hinojosa

Rebekah Hinojosa

anothergulfispossible@gmail.com

*On Behalf of Another Gulf is Possible
Collaborative*

/s/ Elida Castillo

Elida Castillo

ecastillo@lcv.org

On Behalf of Chispa Texas

/s/ Denisce Palacios

Denisce Palacios

denisce@tfn.org

On Behalf of Texas Rising Action

/s/ Mary Bernard

Mary Bernard

mary@btbiospherereserve.org

*On Behalf of Big Thicket Biosphere
Reserve*

/s/ Marcie Keever

Marcie Keever

mkeever@foe.org

On Behalf of Friends of the Earth

/s/ Jesús Manuel Reyes

Jesús Manuel Reyes

Jesusreyes867@gmail.com

On Behalf of SunRise El Paso

/s/ Robin Schneider

Robin Schneider

robin@texasenvironment.org

*On Behalf of Texas Campaign for the
Environment*

/s/ Drew Hudson

Drew Hudson

drew@198methods.org

On Behalf of 198 Methods

/s/ Chris Phelan

Chris Phelan

ftggcoastalbend@gmail.com

On Behalf of For the Greater Good

/s/ Jennifer Krill

Jennifer Krill

jkrill@earthworksaction.org

On Behalf of Earthworks

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused the foregoing document to be served upon each person designated on the official service list compiled by Secretary in this proceeding.

Dated at Bexar County, Texas this 19th Day of October, 2022.

/s/ Thomas Gosselin

Thomas Gosselin

Sierra Club

P.O. Box 4998

Austin, TX 78765

(424) 346-3276

tom.gosselin@sierraclub.org

Attorney for Sierra Club

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Rio Grande LNG, LLC

)

Docket No. CP21-____-000

**APPLICATION OF RIO GRANDE LNG, LLC FOR LIMITED AMENDMENT TO
AUTHORIZATION GRANTED UNDER SECTION 3 OF THE NATURAL GAS ACT**

Pursuant to Section 3(a) of the Natural Gas Act (“NGA”)¹ and Part 153 of the Federal Energy Regulatory Commission (“FERC” or “Commission”) regulations,² Rio Grande LNG, LLC (“RGLNG”) hereby files this application seeking a limited amendment (“Limited Amendment”) to RGLNG’s November 22, 2019 authorization (“Authorization”) to site, construct and operate the Rio Grande LNG Terminal (“RGLNG Terminal”), in Docket No. CP16-454-000 (“Authorization Order”),³ as amended by Commission Staff’s August 13, 2020 letter order (“August 13 Letter Order”).⁴ RGLNG requests the Commission permit RGLNG to amend the Authorization to incorporate carbon capture and sequestration (“CCS”) systems into the approved site and design of the RGLNG Terminal. Construction and operation of the CCS systems will enable RGLNG to voluntarily capture and sequester at least 90% of the carbon dioxide (“CO₂”) produced at the RGLNG Terminal. The carbon capture process, as detailed in the exhibits submitted herewith, removes CO₂ from both the feed gas to be liquefied at the RGLNG Terminal and the exhaust flue gas from the main refrigerant compressor gas turbines central to the liquefaction process. To provide context for this 90% reduction, according to the national net carbon dioxide equivalent (“CO_{2e}”) emissions estimate in the Environmental Protection Agency’s (“EPA”) *Inventory of U.S. Greenhouse Gas Emissions and Sinks* (EPA 2019), 5.769 billion metric tons of CO_{2e} were emitted

¹ 15 U.S.C. § 717b(a).

² 18 C.F.R. Part 153 (2020).

³ *Rio Grande LNG, LLC*, 169 FERC ¶ 61,131 (2019) (“Authorization Order”), *reh’g denied*, 170 FERC ¶ 61,046 (2020) (“Order on Rehearing”).

⁴ *Rio Grande LNG, LLC*, Docket No. CP16-454-000 (FERC Staff Letter Order “Approval of Design Change Proposals” issued Aug. 13, 2020) (“August 13 Letter Order”).

at the national level in 2019 (inclusive of CO₂e sources and sinks).⁵ As contemplated in the Authorization Order, the operational emissions of the RGLNG Terminal were assessed to potentially increase the annual CO₂e emissions based on the 2017 levels by approximately 0.17 percent at the national level. Deploying CCS systems at the RGLNG Terminal that capture 90% or more of the CO₂ means the RGLNG Terminal would potentially increase the annual CO₂e emissions based on the 2019 national levels by approximately 0.0001 percent. Accordingly, recent precedent should allow the Commission to expeditiously find that the RGLNG Terminal's contribution to global climate change with CCS systems operating would not be significant.⁶

Once captured, the CO₂ will be transported via pipeline to an underground geologic formation permitted by the EPA and relevant Texas agencies via its underground injection control ("UIC") Class VI permitting regime for geologic sequestration. The CCS systems to be implemented at the RGLNG Terminal will be collectively referred to as the "CCS Systems."

RGLNG respectfully requests expeditious approval of this Limited Amendment, so that RGLNG may incorporate the CCS Systems into the design of the RGLNG Terminal without delay, and – consistent with the climate goals set forth under the Paris Agreement – proceed to provide world markets access to what RGLNG believes is the greenest liquefied natural gas ("LNG") in the world.

In support of this Limited Amendment, RGLNG states as follows:

⁵ EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019, at ES-21 (2021), <https://www.epa.gov/sites/default/files/2021-04/documents/us-ghg-inventory-2021-main-text.pdf>.

⁶ FERC News Release, March 18, 2021. FERC assessed the significance of the proposed Northern Natural gas pipeline (Docket No. CP20-487) project's impact on global climate change based on comparison of the project's expected CO₂e emissions with national and state levels. <https://ferc.gov/news-events/news/ferc-reaches-compromise-greenhouse-gas-significance>.

- CO₂ Absorber (column, vessels, pumps, heat exchangers, tanks, filters, etc.)
- Amine Regenerator and Reboiler (column, vessels, pumps, heat exchangers, tanks, filters, etc.)
- CO₂ Dehydration (columns, pumps, heat exchangers, etc.)
- CO₂ Compression (compressor(s), vessels, heat exchangers, etc.)
- Hot oil system (Waste Heat Recovery Unit and distribution)

Engineering and design material related to this equipment is included within the exhibits filed with this Application. RGLNG plans to commence construction of the RGLNG Terminal early in 2022. As such, RGLNG requests expedited consideration of the CCS Systems so that it can commence construction of the CCS Systems soon thereafter.

Operationally, the RGLNG Terminal will be able to function independently of the CCS Systems. For example, in the event that the CCS Systems were taken offline for maintenance once in service, the RGLNG Terminal will be able to operate seamlessly at full capacity in order to meet its legally binding, contractual commitments to its liquefaction customers.

A critically important aspect of global efforts to reduce GHG emissions is the monitoring, reporting, and verification (“MRV”) of emissions reduction initiatives. NextDecade Corporation and its subsidiaries support MRV efforts, and to that end, NextDecade has formed a joint pilot project with Project Canary¹⁷ for monitoring, reporting, and independent third-party measurement and certification of the GHG intensity of LNG to be sold from the RGLNG Terminal.¹⁸ The

¹⁷ Project Canary is a Series-A growth stage company based in Denver, Colorado. Project Canary is an independent, mission-driven public benefit corporation that opens the door to being a part of solving climate change for oil & gas, agriculture, and landfill companies by providing science, hardware, and continuous monitoring software. Project Canary provides on the order of 4 to 5 magnitudes more usable data that is 200% more accurate than previous methods, which relied on point-in-time measurements. Its goal is to materially mitigate climate change by helping companies deliver products that account for and address their environmental impact. It provides independent data in a real-time dashboard, so companies are cleaner, more efficient, and more sustainable.

¹⁸ Reuters, *NextDecade to certify natgas emissions for Texas Rio Grande LNG* (Apr. 19, 2021), available at <https://www.reuters.com/business/energy/nextdecade-certify-natgas-emissions-texas-rio-grande-lng-2021-04-19/>.

voluntary joint effort is the first of its kind in the LNG industry. As explained by Project Canary, it “will deploy its TrustWell™ certification process to confirm that each element of the natural gas value chain – from the wellhead to the ship at the RGLNG Terminal – has achieved low emissions targets and utilized the highest standards of environmental performance and social responsibility. This partnership will enable the development of a responsibly sourced natural gas supply chain from leading producers in the Permian Basin and Eagle Ford Shale and independent, third-party certification of the GHG intensity of LNG.”¹⁹ In short, all CO₂ captured by the CCS Systems will be subject to an independent, third-party verification process.

Once captured at the RGLNG Terminal, the CO₂ will be transported via a non-jurisdictional pipeline to an EPA-authorized Class VI underground injection well for sequestration. The geologic formations in south Texas are ideal for sequestration of CO₂. In fact, there are several sequestration sites in very close proximity to the RGLNG Terminal site. In the event that RGLNG needs to sequester the captured CO₂ outside of the RGLNG Terminal site, NextDecade announced an agreement with Oxy Low Carbon Ventures to transport and sequester the CO₂ captured at the RGLNG Terminal²⁰ and is in discussions with other providers of sequestration services. Any pipeline that is required in order to transport the CO₂ to the sequestration site will not be FERC jurisdictional,²¹ and instead will be subject to the jurisdiction of the Texas Railroad Commission (“TXRRC”), Texas Commission on Environmental Quality, and other Texas agencies. Such

¹⁹ *NextDecade and Project Canary Launch GHG Measurement and Certification Framework, First for Global LNG Industry* (Apr. 19, 2021), available at <https://www.projectcanary.com/next-decade-and-project-canary-launch-ghg-measurement-and-certification-framework-first-for-global-lng-industry/>.

²⁰ Reuters, *Occidental unit to transport CO₂ from NextDecade's Texas LNG export project* (Mar. 25, 2021), available at <https://www.reuters.com/article/us-nextdecade-rio-grande-lng-plant/occidental-unit-to-transport-co2-from-nextdecades-texas-lng-export-project-idUSKBN2BH3AH>.

²¹ In fact, FERC previously has disclaimed jurisdiction over carbon pipelines under both the NGA, *see Cortez Pipeline Co.*, 7 FERC ¶ 61,024 (1979), and the Interstate Commerce Act, *see Cortez Pipeline Co.*, 45 Fed. Reg. 85,177 (1980). The latter decision was issued by the Interstate Commerce Commission, FERC's predecessor with regard to jurisdiction over interstate oil and oil product pipelines.

pipeline will be very short, likely fewer than 10 miles given the facility's proximity to geologic formations optimal for CO₂ sequestration.

CO₂ will be stored in the pore space pursuant to Class VI injection well permitting for CO₂ sequestration, an EPA-administered permit program which includes meaningful public engagement. This existing federal regulatory framework is rigorous and capable of managing permitting and review actions while protecting the environment, public health, and safety as carbon capture, utilization, and sequestration projects move forward in the United States.²² Accordingly, RGLNG is currently working under the guidelines provided by the EPA to advance the CCS Systems.

RGLNG has begun conducting site characterization of favorable storage sites under EPA guidelines among various initial steps required for EPA Class VI permitting for geological sequestration. Site characterization consists of extensive review of the area(s) proposed for geological storage of CO₂ to ensure adequate geology exists to accept the anticipated volume of CO₂ to be injected over time and to ensure the CO₂ remains contained underground with no possibility of contaminating underground sources of drinking water or leaking to the surface.

V. PUBLIC INTEREST

Pursuant to Section 3(a) of the NGA, "[t]he Commission shall issue [an] order upon application, unless...it finds that the proposed exportation...will not be consistent with the public interest."²³ Section 153.7(c) of the Commission's regulations, which implements Section 3(a) of the NGA, requires a showing that the proposal is not inconsistent with the public interest.²⁴

²² As noted by the Council on Environmental Quality Report to Congress on Carbon Capture, Utilization, and Sequestration (CCUS), Delivered to the Committee on Environment and Public Works of the Senate and the Committee on Energy and Commerce, the Committee on Natural Resources, and the Committee on Transportation and Infrastructure of the House of Representatives, as directed in Section 102 of Division S of the Consolidated Appropriations Act, 2021.

²³ 15 U.S.C. § 717b(a).

²⁴ 18 C.F.R. § 153.7(c) (2020).

support staff. Local labor will be hired to the maximum extent practicable. A significant number of operational employees are expected to be hired from the local labor pool.

IX. EXEMPTION FROM PRE-FILING

Given the purpose and scale of the CCS Systems, RGLNG respectfully submits this Limited Amendment be exempt from the Commission's otherwise mandatory pre-filing procedures as set forth in Section 157.21 of the Commission's regulations.³⁵ Section 157.21(a) of the Commission's regulations states that mandatory pre-filing procedures apply when a prospective applicant seeks authorization to "site, construct and operate" LNG terminal facilities, or when "prospective modifications to an existing LNG terminal...involve significant state and local safety considerations that have not been previously addressed."³⁶ Section 157.21(a) further provides that examples of such modifications requiring pre-filing review include (but are not limited to) "the addition of LNG storage tanks; increasing throughput requiring additional tanker arrivals or the use of larger vessels; or changing the purpose of the facility from peaking to base load."³⁷

As discussed above, the purpose of the CCS Systems is solely to capture and store the RGLNG Terminal's CO₂ emissions. No modifications to the RGLNG Terminal's storage tanks or throughput are proposed, and no additional LNG tankers, or use of larger LNG tankers, would be needed to accommodate the CCS systems. Moreover, the CCS Systems will have no impact on the RGLNG Terminal's operations, and the purpose of the RGLNG Terminal will remain the same: liquefaction and export of up to 27 MPTA of LNG to countries around the globe which depend on reliable, less carbon-intensive supplies of American natural gas. As discussed herein and in the

³⁵ 18 C.F.R. § 157.21 (2020).

³⁶ *Id.*

³⁷ *Id.*

WHO WE ARE	WHAT WE DO	GET INVOLVED	GIVE
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Garcia Pasture

WORLD MONUMENTS WATCH

2022

BROWNSVILLE, TEXAS, UNITED STATES

Site History and Significance

A Complex Cultural Landscape

The ancestors of the Carrizo/Comecrudo Tribe of Texas, as the nation of Esto’k Gna has come to be known, developed complex political organizations based on the natural landscapes of the ecologically diverse Rio Grande, which zigzags across the southeastern Texas border and into the state of Tamaulipas in Mexico. The area is home to one of America’s premier archaeological sites, known as Garcia Pasture, a pre-Columbian village dating to between 1000 and 1750 CE. This cultural landscape hosts human burials, village ruins, rock art, and shell working areas, as well as diverse wildlife, plant life, and the rich legacy of some of the first North American human inhabitants.

The Vanishing of a Nation’s Heritage and Way of Life

The cultural heritage and way of life of dozens of clans, bands, and societies from the vast nation of Esto’k Gna is rapidly vanishing due to changing coastlines, rising tides, and a proposed energy development threatening the future of Garcia Pasture. These losses compound a long history of disconnecting tribal members from their homeland, including the plundering of ancestral gravesites during archaeological expeditions conducted in the 1930s and denied attempts at reburying cherished ancestors, who lie unceremoniously in cardboard boxes on museum shelves inaccessible to their living descendants.

Despite the overwhelming historical evidence, the Carrizo/Comecrudo struggle to gain federal recognition as an Indigenous people and, therefore, lack protection from dispossession of their lands and iniquitous extraction of natural resources that would indelibly mar their cultural landscape and undermine their Tribal identity. Although the Native American Graves Protection and Repatriation Act (NAGPRA) facilitates the return of certain sensitive cultural materials and human remains to federally recognized tribes, the Carrizo/Comecrudo are not even afforded this form of restorative justice.

Taking Action against a Proposed Pipeline Plan

A recent ruling by the U.S. Court of Appeals for the District of Columbia determined federal government agencies had not conducted adequate analysis of the impacts on cultural and environmental resources of a proposed natural gas pipeline. The U.S. National Park Service called the pipeline into question because the cultural resource study “did not do a thorough enough job in researching and understanding the Garcia Pasture site, nor the prehistoric archeology of the Rio Grande Delta and deep South Texas.” This represents the first time a Federal agency has formally recognized the significance of this cultural landscape.

2022 World Monuments Watch

By including Garcia Pasture on the 2022 World Monuments Watch, WMF encourages further engagement of Indigenous communities as decision-makers in land use proposals and aims to support the Carrizo/Comecrudo in their calls to reconsider the proposed pipeline project. WMF plans to contribute to the Tribe’s efforts to gain Federal tribal recognition that affords them protections to their ancestral homeland and ends a practice of tribal erasure that has persisted since the first arrival of Europeans.

EXPLORE THE 2022 WATCH >

Learn More

Promising Practices for EJ Methodologies in NEPA Reviews

*Report of the Federal Interagency
Working Group on Environmental
Justice & NEPA Committee*

MARCH 2016

Working
together towards
collaborative
and innovative
solutions



Environmental Impact Statement should be prepared.

3. A disproportionately high and adverse impact to minority populations and low-income populations can occur at any level of NEPA review. In some circumstances, an agency may determine that impacts are disproportionately high and adverse, but not significant within the meaning of NEPA. In other circumstances, an agency may determine that an impact is both disproportionately high and adverse and significant within the meaning of NEPA.
4. In general, pursuant to NEPA, determining whether an impact is significant requires consideration of both context (i.e., society as a whole, the affected region, the affected interests, and the locality) and intensity (i.e., the severity of the impact) (see 40 CFR §1508.27(a)-(b)). The impacts of a proposed action on minority populations and low-income populations should inform the determination of whether impacts are significant.
5. An assessment of an impact's significance to the general population without consideration of the impact to minority populations and low-income populations in the affected environment may not be adequate. An agency's consideration of impacts to minority populations and low-income populations helps ensure that significant impacts are identified.
6. Executive Order 12898 instructs agencies to determine whether impacts are disproportionately high and adverse to minority populations and low-income populations but EO 12898 does not address significance. Agencies may choose to consider determining whether an impact is significant prior to analyzing whether the impact is disproportionately high and adverse, since significance may be a factor for consideration in an agency's disproportionately high and adverse determination.¹⁴ To the extent agencies seek additional guidance on how to analyze significance. Refer to CEQ NEPA regulation on significance at 40 CFR §1508.27. (See also section 7.1-2)
7. Determining whether an impact is significant to minority populations and low-income populations in the affected environment involves focusing the analysis on aspects of context and intensity most relevant to the impacted community. In general, this entails focusing on various factors related to an impact's severity

¹⁴ See Appendix A, "Text of Executive Order 12898, 'Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,' Annotated with Proposed Guidance on Terms in the Executive Order," which is attached to CEQ's [*Environmental Justice Guidance Under the National Environmental Policy Act \(1997\)*](#)

VIII. DISPROPORTIONATELY HIGH AND ADVERSE IMPACTS

Guiding Principles

Agencies can be informed by consideration of the following guiding principles:

1. As informed by CEQ's *Environmental Justice Guidance Under the National Environmental Policy Act (1997)*, the identification of a disproportionately high and adverse impact on minority and low income populations does not preclude a proposed agency action from going forward, nor does it necessarily compel a conclusion that a proposed action is environmentally unsatisfactory. If an agency determines there is a disproportionately high and adverse impact to minority populations and low-income populations, an agency may wish to consider heightening its focus on meaningful public engagement regarding community preferences, considering an appropriate range of alternatives (including alternative sites), and mitigation and monitoring measures.
2. 'Context' and 'intensity', evaluated during the consideration of an impact's significance (See 40 CFR §1508.27) may be factors that can (as appropriate) inform an agency's determination whether an impact is disproportionately high and adverse (See Executive Order 12898).
3. 'Significance' may, as appropriate, be a factor in determining if an impact is disproportionately high and adverse. (See Appendix A, Text of Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, Annotated with Proposed Guidance on Terms" which is attached to CEQ's *Environmental Justice Guidance Under the National Environmental Policy Act (1997)*). In some circumstances, an agency may determine that impacts are disproportionately high and adverse, but not significant within the meaning of NEPA. In other circumstances, an agency may determine that an impact is both disproportionately high and adverse and significant within the meaning of NEPA. A finding of no significant impacts to the general population is insufficient (on its own) to base a determination that there are no disproportionately high and adverse impacts to minority populations and low-income populations.
4. Disproportionately high and adverse impacts are typically determined based on the impacts in one or more resource topics analyzed in NEPA documents. Any identified impact to human health or the environment (e.g., impacts on noise, biota, air quality, traffic/congestion, land use) that potentially affects

minority populations and low-income populations in the affected environment might result in disproportionately high and adverse impacts.

5. Agencies may wish to integrate the analysis of the potential for disproportionately high and adverse impacts to minority populations and low-income populations into the NEPA process. The basic principles and practices of analysis applicable to all resource topics analyzed in the NEPA document (air emissions, water, biota, human health, noise, etc.) apply to the analysis of disproportionately high and adverse impacts as well.
6. Agencies may wish to consider factors that can amplify identified impacts (e.g., the unique exposure pathways, prior exposures, social determinants of health) to ensure a comprehensive review of potential disproportionately high and adverse impacts to minority populations and low-income populations.
7. Agencies may wish to recognize that in instances where an impact from the proposed action initially appears to be identical to both the affected general population and the affected minority populations and low-income populations, there may be inter-related ecological, aesthetic, historic, cultural, economic, social, or health factors that amplify the impact (e.g., unique exposure pathways, social determinants of health, community cohesion). After consideration of factors that can amplify an impact to minority populations and low-income populations in the affected environment, an agency may determine the impact to be disproportionately high and adverse.
8. Agencies' approaches should not determine that a proposed action or alternative would not have a disproportionately high and adverse impact on minority populations and low-income populations solely because the potential impacts of the proposed action or alternative on the general population would be less than significant (as defined by NEPA). Agencies may wish to consider unique vulnerabilities, special exposure pathways, and cultural practices associated with minority populations and low-income populations in the affected environment.
9. The disproportionately high and adverse impacts determination can help inform how an agency develops and/or selects alternative(s) and mitigation measures to avoid, minimize, rectify, reduce, or compensate for adverse impacts.
10. Agencies may wish to consider the distribution of beneficial and adverse impacts between minority populations and low-income populations in the

CP21-____-000

Rio Grande LNG Project with Carbon Capture and Sequestration

Resource Report 1: General Project Description

November 17, 2021

Prepared by:



1000 Louisiana St., Suite 3900
Houston, TX 77002

JA725

- Provide opportunities to increase the wealth of the nation through constructive deployment of capital;
- Provide an avenue for companies to benefit from the bountiful supplies of economically recoverable natural gas in North America;
- Promote a stable and robust natural gas industry;
- Stimulate the economies of its trading partners; and
- Improve national and world security.

The implementation of the CCS Systems will also result in the following benefits, all of which are consistent with the public interest:

- Stimulate the local, regional, and national economies through the creation and preservation of construction and permanent jobs in addition to those already required for the RGLNG Terminal;
- Provide an environmentally friendly and economically stimulating outlet to producers of domestic natural gas;
- Facilitate the ability of foreign nations to displace less desirable energy sources (e.g., higher cost and less environmentally friendly fuels) with less carbon-intensive, responsibly sourced natural gas;
- Improve ambient air quality in foreign nations by displacing fuels that have higher carbon content, mercury emissions, and particulate emissions;
- Increase economic trade and ties with foreign nations authorized to receive LNG exports from the United States.

1.2 Project Description - Overview

Generally, RGLNG's CCS Systems consist of:

- A Post Combustion Capture (PCC) system for the exhaust flue gas of the Main Refrigerant Gas Turbine Compressors;
- Re-routing of the Acid Gas Removal Unit (AGRU) vent stream from a thermal oxidizer to a sequestration compressor;
- Addition of a sequestration compressor to the combined streams from the PCC and AGRU to meet an interface with a pipeline to sequester the CO₂; and
- Modifications to the RGLNG utility design to accommodate the additional equipment outlined above.

In addition, RGLNG's CCS Systems will include the following specific components and equipment:

- Flue Gas Cooling (heat exchanger(s), pumps, blowers, etc.)
- CO₂ Absorber (column, vessels, pumps, heat exchangers, tanks, filters, etc.)
- Amine Regenerator and Reboiler (column, vessels, pumps, heat exchangers, tanks, filters, etc.)
- CO₂ Dehydration (columns, pumps, heat exchangers, etc.)
- CO₂ Compression (compressor(s), vessels, heat exchangers, etc.)
- Hot oil system (Waste Heat Recovery Unit and distribution)

The CCS Systems are configured to be efficiently collocated within the process trains and utility areas of the Terminal. RGLNG has previously developed a master plan with a plant layout and infrastructure that allows for continuous construction activities centered around the successive construction of the five liquefaction trains, with supporting utilities and infrastructure (including CCS) being added in support of the stepped increased liquefaction capacity. Though construction of the five liquefaction trains is anticipated to be continuous, the construction process will take place in five stages, with the start of each train and associated CCS systems construction ideally occurring between six to nine months after the previous train's commenced construction. RGLNG developed a staged construction schedule to avoid an excessive manpower peak and thereby reduce local impacts. This proposed configuration of the Terminal and CCS Systems will allow a portion of the Project to come online (subject to FERC approval) and start producing LNG and capturing CO₂ while construction continues on the later-stage facilities.

RGLNG intends to voluntarily apply CCS Systems to the Terminal and for these systems to be operational for most of the time. However, there will be situations when RGLNG Terminal emissions will revert back to the current permitted TCEQ values. These situations include commissioning and start-up, safety system overrides, as well as shutdowns and maintenance.

1.2.1 CCS Systems

While the CCS Systems are not NGA-jurisdictional, as they do not relate to the liquefaction and export of LNG, the CCS Systems will tie-in to FERC-jurisdictional facilities, be incorporated into the overall design of the RGLNG Terminal and be largely located within its footprint. In fact, the CCS Systems will be collocated within the RGLNG Terminal, with the exception of the CO₂ sequestration pipeline, which will extend from the Terminal to a nearby (within 10 miles) site for geologic sequestration via an EPA-regulated Class VI injection well.

The stages of construction and installation for the Terminal have already been detailed, reviewed and approved by FERC Staff previously. With the exception of the non-jurisdictional CO₂ pipeline, all CCS

**VIA ELECTRONIC FILING**

November 1, 2022

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

**Re: OEP/DLNG/LNG2
OEP/DG2E/Gas Branch 4
Rio Grande LNG, LLC
Rio Grande LNG Project
Docket No. CP16-454-000
Supplemental Information Related to August 16, 2022 Environmental Information Request**

Dear Ms. Bose:

On May 5, 2016, Rio Grande LNG, LLC ("RGLNG") filed an application with the Federal Energy Regulatory Commission (the "FERC") for authorization pursuant to Section 3(a) of the Natural Gas Act (the "NGA") to site, construct, and operate a natural gas liquefaction facility and liquefied natural gas ("LNG") export terminal in Cameron County, Texas, along the north embankment of the Brownsville Ship Channel (the "Rio Grande LNG Project" or "Terminal").

On November 22, 2019, FERC issued an order authorizing the construction and operation of the Rio Grande LNG Project (the "Order"). On January 23, 2020, FERC denied requests for rehearing of the Order. On January 19, 2021, FERC denied requests for rehearing of the Order related to design changes approved on August 13, 2020. On November 17, 2021, RGLNG filed with FERC a limited amendment application to its existing NGA Section 3 authorization to incorporate carbon capture and sequestration ("CCS") systems into the approved site and design of the RGLNG Terminal ("CCS Limited Amendment Application"). This application is currently under review by FERC Staff.

On August 3, 2021,¹ the U.S. Court of Appeals for the District of Columbia Circuit ("D.C. Circuit") remanded to FERC for further consideration its authorization of the RGLNG Terminal, citing limited deficiencies in FERC's climate change and environmental justice analyses. The D.C. Circuit did so without

¹ *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321 (D.C. Cir. 2021).



vacatur, however, upholding the legal validity of RGLNG's authorization for the RGLNG Terminal. In the 54 weeks since the D.C. Circuit's remand, FERC Staff issued two environmental information requests ("EIR"), which RGLNG responded to within the time requested. On August 16, 2022, FERC Staff issued a third EIR ("August 16 EIR") also intended to address deficiencies noted in the D.C. Circuit's August 3, 2021 remand, and for FERC Staff to conduct additional necessary analysis for the authorized LNG export terminal.

To assist FERC Staff and encourage an expeditious closure of the deficiencies listed in the D.C. Circuit's remand as the highest priority, RGLNG hereby submits a letter from SLR International Corporation (SLR) to FERC dated November 1, 2022, which provides supplemental information responsive to items 1 and 2 of the August 16 EIR.

This filing is being served on each person on the official service list for this proceeding.

If you have any questions, please contact Jerry Schafer at 832-426-2955.

Respectfully submitted,

/s/ Jerry Schafer

Jerry Schafer

Director, Regulatory and Permitting

Vera de Gyrfas

General Counsel and Corporate Secretary

cc: Karla Bathrick, FERC
Kenneth Warn, FERC
Ghanshyam Patel, FERC
Sungki Jeong, FERC
David Wochner, Esq, K&L Gates LLP



November 1, 2022

Ms. Karla Bathrick
LNG Branch 2
Office of Energy Projects
Federal Energy Regulatory Commission
Washington, D.C. 80426

**Re: Rio Grande LNG, LLC Response to FERC Environmental Information Request
Resource Report 9, Comment No. 3 (Updated Refined Air Quality Modeling)**

Dear Ms. Bathrick:

SLR International Corporation (SLR) is submitting this updated letter on behalf of Rio Grande LNG, LLC (RGLNG) in response to Federal Energy Regulatory Commission's (FERC) Environmental Information Request dated February 3, 2022. This letter and associated attachments provide response to FERC's Resource Report (RR9) Comment No. 3 related to providing updated refined air quality modeling for the subject project.

Comment 3.a

Provide an updated refined air quality model for the RG LNG Terminal that includes a demonstration that emissions of criteria pollutants from the RG LNG Terminal and mobile sources do not result in exceedance of the National Ambient Air Quality Standards (NAAQS), or state standards. Ensure that all emissions from the RGLNG Terminal are reflected in the air quality model inputs and provide all source input parameters (emission rate, stack height, stack temperature, exit velocity, etc.), and justify the bases for any assumptions. Include mobile ship emissions (LNG carrier, tugs, escort vessels) for the air quality model for the moored safety zone. The model should include relevant regional monitoring ambient background data and existing and proposed regional industrial major sources within 50 kilometers of the fenceline of the RG LNG Terminal (excluding the Texas LNG Terminal [Docket No. CP16-116-000]).

Rio Grande LNG Response: SLR has prepared an updated refined air quality modeling analysis using the updated project emissions presented in **Attachment 1** (referencing the "5 Trains" values) of this letter and the current version of the EPA-approved AERMOD modeling system. The updated emissions were combined with the other source input parameters that supported prior modeling analyses submitted to FERC and/or the TCEQ; no assumptions underlying the modeling analysis presented here have been altered. The modeling was conducted consistent with methods and procedures that follow current agency guidance, an approach that NextDecade and SLR have taken throughout all modeling demonstrations conducted to date. Since only the emission rates were updated, no other changes were made to the other source input parameters (i.e., stack height, stack temperature, exit velocity). The updated modeling includes an inventory of permitted



November 1, 2022

Ms. Karla Bathrick

Page 2

industrial sources in an area extending 50 kilometers from the project boundary obtained from TCEQ, and quality assured using standard methods. Project-related mobile ship sources were also included, as have been previously presented.

The updated modeling incorporated a more recent 5-year meteorological data set to drive the AERMOD dispersion model. These data were obtained from the TCEQ for Brownsville International Airport for the period 2014-2018. Background air quality concentrations were also updated to the most recent 3-year period for which data were available and had sufficient annual data completeness. The modeling domain included locations within 50 kilometers (km) of the RGLNG Terminal, consistent with previous analyses submitted for this project.

Results of the updated modeling demonstrate that emissions of criteria pollutants from the RGLNG Terminal and mobile sources do not result in exceedances of the National Ambient Air Quality Standards (NAAQS), or state standards. In terms of significance and measurability, although the modeling indicates potential air quality impacts out to 31 miles (50 km), these impacts are below or approaching the detection limit of state and federally-administered NAAQS air quality monitors. Our responses below provide additional details on the results of the study.

Comment 3.b

Include a model of secondarily formed ozone based on background concentrations of ozone and relevant nearby sources. The model should follow guidance provided by the EPA for Region 6, if available.

Rio Grande LNG Response: Secondary impacts using updated project emissions were calculated for ozone following EPA's current Modeled Emission Rates for Precursors (MERPs) guidance and associated databases. The estimated ozone concentration associated with updated project emissions is 1.62 parts per billion (ppb). Following TCEQ guidance, this estimated project impact was added to existing background ozone data representative of the project area. The existing ozone background in the area is 57 ppb, which is the 3-year average of the annual design values measured at the Harlingen Teege air monitoring station (AQS ID 48-061-1023) for the years 2018, 2019, and 2020. When the estimated project impact of 1.62 ppb is added to the existing ozone concentrations, the cumulative impact is 58.6 ppb, well below the 8-hour ozone NAAQS of 70 ppb.

Comment 3.c

Provide a table showing the highest predicted concentrations of all criteria pollutants outside the fenceline as well as the location of these highest concentrations relative to the RG LNG Terminal. The table should include (1) the modeled concentration that is contributed by the RG LNG Terminal, (2) the modeled



November 1, 2022

Ms. Karla Bathrick

Page 3

combined background concentration with industrial sources within 50 kilometers at that location, and (3) the total concentration.

Rio Grande LNG Response: In response to comments, cumulative impact analyses were performed for all criteria pollutants and averaging periods. While the furthest distance from the facility for which receptors were significant is approximately 29 kilometers, the cumulative impact analysis included off-site industrial sources within 50 km of the project location consistent with prior modeling analyses submitted to FERC and/or the TCEQ. The background concentrations were updated to the most recent three years of complete data from the Lake Jackson (AQS ID 48-039-1016) monitoring station.

Results of the cumulative impact analyses for all criteria pollutants and averaging periods are presented in Table 1 and demonstrate that cumulative impacts will be below all NAAQS.

Table 1 Results of the Cumulative Impacts Analyses

Pollutant	Averaging Period	UTM East (m)	UTM North (m)	Model Concentration ($\mu\text{g}/\text{m}^3$)	Ambient Background ($\mu\text{g}/\text{m}^3$)	Total Concentration ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)	Above NAAQS?
CO	1-hour	673318.13	2877643.75	4290.35	1,947	6,237	40,000	No
	8-hour	673318.13	2877643.75	2791.88	1,145	3,937	10,000	No
NO ₂	1-hour	637813.35	2900168.08	106.62	63.9	170.52	188	No
	Annual	676818.13	2881643.75	2.06	5.6	7.66	100	No
SO ₂	1-hour	650813.35	2879168.08	102.63	13.1	115.73	196	No
	3-hour	650813.35	2879168.08	87.98	13.1	101.08	1,300	No
Direct PM _{2.5}	24-hour	639813.35	2898168.08	6.33	28	34.45	35	No
Secondary PM _{2.5}		--	--	0.12				
Total PM _{2.5}		--	--	6.45				
Direct PM _{2.5}	Annual	639813.35	2898168.08	2.17	9.7	11.88	12	No
Secondary PM _{2.5}		--	--	0.0060				
Total PM _{2.5}		--	--	2.18				
PM ₁₀	24-hour	639813.35	2898168.08	47.59	60	107.59	150	No

¹ Universal Transverse Mercator (UTM) Zone 14 North American Datum 1983 (NAD83) coordinates



November 1, 2022

Ms. Karla Bathrick

Page 4

Comment 3.d

Provide figures showing the concentration isopleths (i.e., concentration plumes), showing the full range of concentrations for all criteria pollutants including ozone for the highest impact scenario. Show the concentration isopleths starting from the RG LNG Terminal and extending to 50 kilometers from the fenceline. There should be a separate figure for each criteria pollutant.

Rio Grande LNG Response: See response to Comment 3.e.

Comment 3.e

Provide another set of figures as in (d) with an overlay of the census block groups in the figures. Clearly label areas where there is a modeled exceedance of the NAAQS.

Rio Grande LNG Response: RGLNG submitted the requested figures in **Attachment 2** of our March 1, 2022 response letter. While the modeled concentrations have changed slightly with the removal of the carbon capture system (CCS), all pollutants and averaging period, except 1-hour NO₂, remain below their respective SIL and well below their respective NAAQS. In response to comment, RGLNG has additionally performed cumulative modeling for all criteria pollutants and averaging periods, despite all but 1-hr NO₂ being below the SIL. RGLNG is providing in **Attachment 2** of this letter a color-coded map of the modeled receptor points that contains a legend indicating the level of total concentration (including the background concentration and emission sources within 50 kilometers of RGLNG) overlaid on each census block. No NAAQS were exceeded in any of the census block groups within 50 kilometers of the RG LNG Terminal fenceline.

Comment 3.f

Provide a table (or tables) showing the maximum modeled concentrations of each criteria pollutant within each census block group within 50 kilometers of the RG LNG Terminal fenceline.

Rio Grande LNG Response: RGLNG submitted the requested tables in **Attachment 3** of our March 1, 2022 response letter. As indicated in responses above, RGLNG has performed cumulative modeling for all criteria pollutants and averaging periods with a standard. Therefore, the information provided **Attachment 3** of our March 1, 2022 response letter has been updated to reflect cumulative modeling for all pollutants and averaging periods. No NAAQS were exceeded in any of the census block groups within 50 kilometers of the RG LNG Terminal fenceline.

If you have any questions, please contact Jerry Schafer at (832) 426-2955 or Tim Desselles from SLR International Corporation at (225) 248-6095.

**UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY
FEDERAL ENERGY REGULATORY COMMISSION**

Rio Grande LNG, LLC Rio Bravo Pipeline Company, LLC))))	Docket Nos.	CP16-454-000 CP16-454-003 CP16-455-000 CP16-455-002
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Comments on Responses to Information Requests

On May 5, 2016 Rio Grande LNG, LLC (“RGLNG”) filed an application with the Federal Energy Regulatory Commission (“FERC”) for authorization to site, construct, and operate an LNG export terminal in Cameron County, Texas under the Natural Gas Act. FERC issued an order authorizing the request in November 2019, but the D.C. Circuit Court of Appeals determined that FERC’s analysis of environmental impacts supporting the authorization order was inadequate and remanded the application to FERC to cure those deficiencies.¹ Since then, FERC has issued multiple environmental information requests to RGLNG.

On September 30, 2022 the Commission issued a notice soliciting comments on the information provided by RGLNG in response to those requests. On October 19th *Vecinos para el Bienestar de la Comunidad Costera*, Sierra Club, and other community organizations filed comments (“Vecinos Comments”) addressing several deficiencies in RGLNG’s responses. One of those deficiencies was RGLNG’s failure to provide requested information on air pollution—namely a requested table of background concentrations of criteria pollutants and the impact that RGLNG’s emissions will have on air quality in census block groups within 50 kilometers of the facility.² On November 2nd, RGLNG produced a table modeling the background concentrations and its emissions for census block groups within 50 kilometers of the facility. But rather than provide clarity, these materials only pose more questions. The data provided by RGLNG is directly contradicted by modeling produced by Texas LNG in Docket No. CP16-116.³ As explained, *infra*, RGLNG inexplicably models significantly lower impacts to air quality than Texas LNG.⁴ RGLNG must explain these discrepancies because absent an explanation the impacts of RGLNG’s emissions cannot be understood and FERC cannot adequately analyze and

¹ See *Vecinos para el Bienestar de la Comunidad Costera v. Federal Energy Regulatory Commission*, 6 F.4th 1321, 1331 (D.C. Cir. 2021).

² *Sierra Club et. al., Comments on Responses to Information Requests*, 7-8 (Oct. 19, 2022) [hereinafter “Vecinos Comments”].

³ The Texas LNG facility is, like the RGLNG facility, an LNG export facility that would be constructed in Cameron County, Texas and would be in the same part of Cameron County and along the same ship channel as RGLNG. Accordingly, Texas LNG and RGLNG would be modeling impacts to approximately the same communities within 50 kilometers.

⁴ While not directly at issue here, Commenters’ position is that Texas LNG is not in the public interest or required by the public convenience and necessity.

disclose those impacts to the public as required by the remand in *Vecinos*, the Natural Gas Act, and the National Environmental Policy Act.

First, as noted in the October 9th comments, despite having substantially higher estimated emissions, RGLNG somehow models the predicted concentrations from its facility lower than or at parity with the much smaller Texas LNG.⁵ As demonstrated in Table 1, RGLNG has substantially higher NOx emissions than Texas LNG.

Table 1. Predicted Emissions of NOx for RGLNG and Texas LNG 2026-2029		
<i>Year</i>	<i>Rio Grande LNG Total Emissions in tons per year⁶</i>	<i>Texas LNG Total Emissions in tons per year⁷</i>
2026	3,103.4	329.88
2027	3,390.8	270.75
2028	3,806.4	250.37
2029	4,023.7	207.97

Yet, as shown in Table 2, RGLNG models its maximum contributed 1-HR NOx concentration levels lower than or near parity with Texas LNG in the four census blocks nearest the facility.⁸ This defies logic given the vast difference in the quantity of emissions predicted from the facilities. FERC must demand a public explanation of the modeling.

⁵ *Vecinos* Comments, *supra* note 2 at 9-11.

⁶ Rio Grande LNG, Part 1 Response to August 16, 2022 Environmental Information Request, Attachment 1, Table 9-1 (Aug. 22, 2022) Accession # 20220822-5167.

⁷ Texas LNG, Supplemental Response to Feb. 3, 2022 Environmental Information Request, Table 9-1 (Apr. 29, 2022) Accession # 20220502-5075. (Attached)

⁸ We would have liked to compare the emissions concentrations modeled for Census Tract 14200, Block Group 1. This is the block group where each facility is located. However, it appears that RGLNG and TXLNG have identified this blockgroup by different numbers. If they are modeling their maximum concentrations in the same block group, then RGLNG predicts its 1-HR NOx contributions will be either 72.34 or 45.06 µg/m³. *See* Rio Grande LNG, Attachment 3 to Response to FERC Environmental Information Request Resource Report 9, Comment No. 3 (Updated Refined Air Quality Modeling) (Nov. 1, 2022) Census Tract 142.02 Block Groups 1&2. Again substantially lower than Texas LNG's predicted 1HR NOx concentrations of 124.6 µg/m³ during hoteling and 81.9 µg/m³ during maneuvering.

Table 2. Maximum Modeled Concentrations of 1Hr NO_x for RGLNG and Texas LNG in Selected Block Groups within 50 kilometers of each facility			
<i>Census Tract</i>	<i>RGLNG Maximum Modeled Emissions in µg/m³⁹</i>	<i>Texas LNG Maximum Modeled Emissions during hoteling in µg/m³¹⁰</i>	<i>Texas LNG Maximum Modeled Emissions during maneuvering in µg/m³¹¹</i>
CT – 012700 BG – 2	18.42	88.1	37.5
CT – 12304 BG - 1	7.8	10.3	7.5
CT – 12304 BG -2	8.33	95.7	39.8
CT – 12304 BG – 3	8.04	9.2	6.8

Additionally, RGLNG concludes that there will be no exceedances of the NAAQS in any block group within 50 kilometers of the RG LNG Terminal fence line.¹² Once again this is directly contradicted by Texas LNG’s modeling which shows criteria pollutant background concentrations which exceed the NAAQS in eleven different census block groups.¹³ This includes exceedances of 1-HR NO_x, 24-HR PM₁₀, and 24-HR and Annual PM_{2.5} in Census Tract 142001 Block Group 1 where both terminals are sited and the cities of Port Isabel and Laguna Heights are located.

Moreover, RGLNG’s modeling suffers from a fundamental problem. Instead of modeling the background concentrations for each census block group, as Texas LNG has, RGLNG has arbitrarily applied the same background concentration to every single block group within a 50 kilometer radius of the Terminal fence line.¹⁴ Clearly, it is implausible that all of these census blocks will have the same exact background concentrations.

And it does not appear that this one figure is even accurate. The concentration level provided by RGLNG are the same as those given by RGLNG in response to FERC’s request to “Provide a table showing the **highest concentrations** of all criteria pollutant outside the fence line as well as the location of the highest concentrations relative to the Terminal.”¹⁵ But as with other

⁹ Rio Grande LNG, Attachment 3 to Response to FERC Environmental Information Request Resource Report 9, Comment No. 3 (Updated Refined Air Quality Modeling) (Nov. 1, 2022)

¹⁰ Texas LNG, Supplemental Response to October 28, 2022 Environmental Information Request, Attachment 9-1: Maximum Modeled Concentrations of Criteria Pollutants within Census Block Groups: November 2022 Update. (Attached).

¹¹ *Id.*

¹² *See e.g.* Rio Grande LNG, Response to FERC Environmental Information Request Resource Report 9, Comment No. 3 (Updated Refined Air Quality Modeling) at 4 (Nov. 1, 2022).

¹³ Texas LNG, Supplemental Response to October 28, 2022 Environmental Information Request, Table 4-1: Modeled NAAQS Exceedance Summary by Census Block Group. (Attached).

¹⁴ *See* Rio Grande LNG, Attachment 3 to Response to FERC Environmental Information Request Resource Report 9, Comment No. 3 (Updated Refined Air Quality Modeling) (Nov. 1, 2022).

¹⁵ *Compare Id. with* Rio Grande LNG, Response to FERC Environmental Information Request Resource Report 9, Comment No. 3 (Updated Refined Air Quality Modeling) at 2-3 (Nov. 1, 2022).

data provided by RGLNG, it appears that RGLNG is undercounting. Table 3 below compares the “highest concentrations” modeled by RGLNG and the concentrations modeled by Texas LNG in Census Tract 142001 Block Group 1 for each criteria pollutant. Texas LNG’s modeled concentrations establish much higher levels of pollution than RGLNG’s modeling. It is unclear how RGLNG’s modeled concentrations are so much lower. FERC must demand an explanation of this disparity and cannot rely on RGLNG’s conclusion that there are no exceedances of the NAAQS in any block group within 50 kilometers of the Terminal’s fenceline. Especially when Texas LNG’s modeling shows that exceedances of the NAAQS *are already occurring* in the census block that contains the Terminals.

Table 3. Comparison of RGLNG’s Highest Modeled Background Concentrations and Texas LNG’s Modeled Background Concentrations in the Terminal’s Census Block			
<i>Pollutant</i>	<i>Averaging Period</i>	<i>RGLNG Highest Modeled Concentration (µg/m3)¹⁶</i>	<i>Texas LNG Modeled Concentration in CT 142001, BG 01 (µg/m3)¹⁷</i>
CO	1-HR	1,947	25,216.2
	8-HR	1,145	84,62.6
NO _x	1-HR	63.9	2,171.3
	8-HR	5.6	30.9
PM _{2.5}	24-HR	28	225.1
	Annual	9.7	12.0
PM ₁₀	24-HR	60	408.6

Finally, this further underscores that, as more thoroughly explained in previous comments, it is improper to use Significant Impact Levels to determine whether a project causes or contributes to exceedances of the NAAQS¹⁸ and the emissions from the facility will have disproportionately high and adverse impacts on Environmental Justice communities.¹⁹

¹⁶ Rio Grande LNG, Response to FERC Environmental Information Request Resource Report 9, Comment No. 3 (Updated Refined Air Quality Modeling) at 2-3 (Nov. 1, 2022).

¹⁷ Texas LNG, Supplemental Response to October 28, 2022 Environmental Information Request, Attachment 9-1: Maximum Modeled Concentrations of Criteria Pollutants within Census Block Groups: November 2022 Update. (Attached).

¹⁸ *Sierra Club et. al., Comments on Responses to Information Requests*, 11-12 (Oct. 19, 2022).

¹⁹ *Id.* 12-14.

FERC must demand an explanation of the discrepancies between RGLNG and Texas LNG's modeling before it can fully analyze the impacts of this Terminal on the environment and the communities around it. Ultimately though, Texas LNG's findings that NAAQS exceedances are already present in the project area means this Terminal is not in the public interest. FERC should therefore deny any outstanding applications and vacate any existing approvals.

Respectfully Submitted,

/s/ Jennifer N. Richards

JENNIFER N. RICHARDS
Texas State Bar No. 24107975
TEXAS RIOGRANDE LEGAL AID, INC.
4920 N. IH-35
Austin, Texas 78751
Phone: (512) 374-2758
Email: jrichards@trla.org

**Attorney for Vecinos Para el
Bienestar de la Comunidad Costera**

/s/ Thomas Gosselin

THOMAS GOSSELIN
SIERRA CLUB
P.O. Box 4998
Austin, Texas 78765
424-346-3276
tom.gosselin@sierraclub.org

Attorney for Sierra Club

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:

OEP/DG2E/Gas Branch 4

Rio Grande LNG, LLC

Docket No. CP16-454-000

§ 375.308(x)

January 6, 2023

VIA FERC Service

David Wochner
Counsel for Rio Grande LNG, LLC
K&L Gates LLP
1601 K Street NW
Washington, DC 20006

Re: Environmental Information Request

Dear Mr. Wochner:

The information described in the enclosure is requested for the above-mentioned docket to address deficiencies noted in the U.S. Court of Appeals for the D.C. Circuit's August 3, 2021 decision in *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321 (D.C. Cir. 2021). **Please file a complete response within 15 days of the date of this letter.** If certain information cannot be provided within this time frame, please indicate which items will be delayed and provide a projected filing date.

File your response in accordance with the provisions of the Commission's Rules of Practice and Procedure. In particular, 18 CFR 385.2005 requires all responses to be filed under oath by an authorized Rio Grande LNG, LLC representative, and 18 CFR 385.2010 (Rule 2010) requires service to each person whose name appears on the official service list for this proceeding.

Electronic filing is encouraged using the Commission's eFiling system (see <https://ferconline.ferc.gov/eFiling.aspx>). Be sure to prepare separate volumes/files, as outlined on the Commission's website at <https://www.ferc.gov/sites/default/files/2020-04/CEII-Filing-guidelines.pdf>, and label all controlled unclassified information (CUI) as described at <https://www.ferc.gov/cui>. Critical Energy Infrastructure Information (CEII) (e.g., plot plans showing equipment or piping details) and privileged information (PRIV) (e.g., cultural resources material containing location, character, or ownership information; trade secret information; proprietary information) should be filed as non-public and

labeled as: “**CUI//CEII**” (18 CFR 388.113), “**CUI//PRIV**” (18 CFR 388.112), and as otherwise appropriate with other statutes for labeling CUI (e.g., “**CUI//CEII/SSI**” and in accordance with 49 CFR 15.13 marking requirements). All CUI should be filed separately from the remaining information, which should be marked “**Public.**” For assistance with the Commission’s eFiling system, please contact FERC Online Support at FERCOnlineSupport@ferc.gov, (866) 208-3676 (toll free), or (202) 502-8659 (TTY).

If you have any questions, please contact me at (202) 502-6859. Thank you for your cooperation.

Sincerely,

**KENNETH
WARN**

Digitally signed by
KENNETH WARN
Date: 2023.01.06
14:08:49 -05'00'

Kenneth J. Warn
Environmental Project Manager
Office of Energy Projects

Enclosure

cc: VIA Electronic Mail

Jerry Schafer
Senior Regulatory and Permitting Manager
NextDecade
jschafer@next-decade.com

Enclosure

Rio Grande LNG, LLC (Rio Grande LNG)
Rio Grande LNG Project (CP16-454-000)

1. On May 2, 2022, Texas LNG Brownsville LLC (Texas LNG) provided modeling results showing that the Texas LNG terminal would not be culpable for any National Ambient Air Quality Standards (NAAQS) exceedances.¹ We note that on November 1, 2022, Rio Grande LNG provided updated emissions values for its project.² In order for FERC staff to complete its analysis of the emissions from both Texas LNG and Rio Grande LNG as accurately as possible, including cumulatively, please provide an updated analysis that includes maximum emissions scenarios from the Texas LNG Terminal [Docket No. CP16-116-000]. Specifically, provide an updated refined air quality model for the Rio Grande LNG Terminal that demonstrates whether the Rio Grande LNG's emissions of criteria pollutants from the Rio Grande LNG Terminal and mobile sources result in any exceedance of the NAAQS, or state standards. **Provide a detailed narrative to describe the modeling protocols and methodology used to determine the predicted and background concentration values.** Ensure that all emissions from the Rio Grande LNG Terminal are reflected in the air quality model inputs and provide all source input parameters (emission rate, stack height, stack temperature, exit velocity, etc.), and justify the bases for any assumptions. Include mobile ship emissions (LNG carrier, tugs, escort vessels) for the air quality model for the moored safety zone. The model should include relevant regional monitoring ambient background data and existing and proposed regional industrial major sources within 50 kilometers of the fence line of the Rio Grande LNG Terminal (include the Texas LNG Terminal [Docket No. CP16-116-000] and associated vessel emissions).

PLEASE NOTE: FERC Staff is issuing a similar request to Texas LNG, and we strongly encourage Rio Grande LNG and Texas LNG to share emissions values and modeling parameters to obtain accurate and consistent results; this will greatly assist FERC staff in interpreting the modeled emissions from each project separately as well as cumulatively.

2. Using the model developed in response to question 1 above, evaluate the maximum contribution of the Rio Grande LNG Terminal to any modeled NAAQS exceedance using the MAXDCONT option in AERMOD.

¹ FERC e-library Accession No. 20220502-5075.

² FERC e-library Accession No. 20221102-5018.

3. Provide the speciated emission rate of greenhouse gases (methane, nitrous oxide, and carbon dioxide) of construction equipment and operational equipment for the Rio Grande LNG Project (including mobile operational emissions) expressed in tons per year for maximum operating conditions. Include supporting calculations, emission factors, fuel consumption rates, and annual hours of operation. Emission factors should be based on one of the following methodologies: EPA-certified emission standards; manufacturer data; current EPA AP-42 emission factors; or peer reviewed studies for the equipment.



VIA ELECTRONIC FILING

January 27, 2023

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

**Re: OEP/DG2E/Gas Branch 4
Rio Grande LNG, LLC
Docket No. CP16-454-000
Response to January 6, 2023 Environmental Information Request**

Dear Ms. Bose:

On May 5, 2016, Rio Grande LNG, LLC ("RGLNG") filed an application with the Federal Energy Regulatory Commission (the "FERC") for authorization pursuant to Section 3(a) of the Natural Gas Act (the "NGA") to site, construct, and operate a natural gas liquefaction facility and liquefied natural gas ("LNG") export terminal in Cameron County, Texas, along the north embankment of the Brownsville Ship Channel (the "Rio Grande LNG Project" or "Terminal").

On November 22, 2019, FERC issued an order authorizing the construction and operation of the Rio Grande LNG Project (the "Order"). On January 23, 2020, FERC denied requests for rehearing of the Order. On January 19, 2021, FERC denied requests for rehearing of the Order related to design changes approved on August 13, 2020. On November 17, 2021, RGLNG filed with FERC a limited amendment application to its existing NGA Section 3 authorization to incorporate carbon capture and sequestration ("CCS") systems into the approved site and design of the RGLNG Terminal ("CCS Limited Amendment Application"). This application is currently under review by FERC Staff.

On January 6, 2023, FERC Staff issued an Environmental Information Request ("EIR") intended to address deficiencies noted in the U.S. Court of Appeals for the D.C. Circuit's August 3, 2021 decision in *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321 (D.C. Cir. 2021). A note in this EIR states that, "we [FERC Staff] strongly encourage Rio Grande LNG and Texas LNG to share emissions values and modeling parameters to obtain accurate and consistent results; this will greatly assist FERC Staff in interpreting the modeled emissions from each project separately as well as cumulatively."

RGLNG hereby submits information responsive to this January 6, 2023, request. Included is a letter from SLR International Corporation to FERC Staff dated January 27, 2023, which addresses the requirement to

1000 Louisiana Street, 39th Floor
Houston, TX 77002
+1 713-574-1880
www.next-decade.com

JA743



provide comprehensive air modeling and speciated greenhouse gas (“GHG”) emissions information. As requested by FERC Staff, RGLNG worked closely with Texas LNG to share modeled emission rates and various modeling parameters in an effort to provide accurate and consistent results.

This filing is being served on each person on the official service list for this proceeding.

If you have any questions, please contact Jerry Schafer at 832-426-2955.

Respectfully submitted,

/s/ Jerry Schafer

Jerry Schafer
Director, Regulatory and Permitting

Vera de Gyarfas
General Counsel and Corporate Secretary

cc: Kenneth Warn, FERC
Ghanshyam Patel, FERC
Sungki Jeong, FERC
David Wochner, Esq, K&L Gates LLP

RIO GRANDE LNG PROJECT

Air Dispersion Modeling Report

Prepared for:

Rio Grande LNG – A NextDecade Company

121.02124.00006

January 2023



JA745

3.8 REPRESENTATIVE BACKGROUND MONITOR CONCENTRATIONS

Representative background monitor concentrations are used to account for sources not explicitly included in a modeling analysis. A review of ambient monitor locations provided by the USEPA Air Quality System (AQS) was conducted for each criteria pollutant. TCEQ modeling guidance recommends that ambient monitoring data from the same county as the project source should be used to represent the ambient background concentrations. If no monitor data is available in the same county as the project, then ambient monitoring data from another county, preferably an adjacent county should be used.

With the exception of PM_{2.5}, there are no ambient monitors in Cameron County where the Terminal is located. A PM₁₀ monitor is located in Hidalgo County adjacent to Cameron County. The closest ambient monitors for NO₂, SO₂ and CO are located further away in Galveston, Corpus Christi, and Laredo, respectively. All monitors are proximate to industrial areas and provide an adequate representation of ambient concentrations in the vicinity of the Terminal. Monitor design concentrations for the most recent three years of data (2019 – 2021) are provided in **Table 3-3**.

Note that the Texas LNG modeling analysis includes additional refinements to ambient background concentrations where the 24-hour PM_{2.5} background is represented by the 3-year average of the seasonal 24-hour PM_{2.5} monitor values and the 1-hour NO₂ background is represented by concentrations that vary by season and hour-of-day. These refinements were not used in this modeling analysis.

Table 3-3 Ambient Monitor Design Concentrations (2019-2021)

POLLUTANT	Avg Period	Design Value ($\mu\text{g}/\text{m}^3$)	AQS ID	Location
CO	1-hour	3,779	484790016	Laredo, TX
	8-hour	2,176	484790016	Laredo, TX
NO ₂	1-hour	47.0	481671034	Galveston, TX
	Annual	3.8	481671034	Galveston, TX
PM ₁₀	24-hour	60	482150043	Mission, TX
PM _{2.5}	24-hour	28	480610006	Brownsville, TX
	Annual	9.7	480610006	Brownsville, TX
SO ₂	1-hour	13.1	483550025	Corpus Christi, TX
	3-hour	13.1	483550025	Corpus Christi, TX

3.9 REGIONAL INVENTORY SOURCES

A regional inventory for all criteria pollutants was requested from TCEQ by submitting an Air Permits Allowable Database (APAD) Modeling Retrieval Request Form to the TCEQ Information Resource Division (IRD). The IRD provided a summary report that included emission rates for each pollutant and source parameters for POINT and AREA sources listed in the APAD.

The data provided by IRD was reviewed to identify data gaps in emissions and source parameters. Missing emissions and source parameters were filled with available data from air permit documents and emissions inventory data available from the TCEQ Records Online website³. If no additional source data was available in the air permits, TCEQ defaults were used. Appendix C of the TCEQ modeling guidance provides the following defaults:

- For missing “STACK” parameters:
 - Height = 1.0 m
 - Temperature = ambient (0 Kelvin in the modeling)
 - Velocity = 0.001 m/s

³ [TCEQ Records Online \(texas.gov\)](https://www.tceq.texas.gov/records)

Table 4-2 Cumulative Impact Analysis Results

POLLUTANT	Avg Period	NAAQS ($\mu\text{g}/\text{m}^3$)	Model Concentration ($\mu\text{g}/\text{m}^3$) ¹	Facility Contribution ($\mu\text{g}/\text{m}^3$) ²	Offsite Contribution ($\mu\text{g}/\text{m}^3$) ²	Background Concentration ($\mu\text{g}/\text{m}^3$)	Total Concentration ($\mu\text{g}/\text{m}^3$) ³
CO	1-hour	40,000	4,304	0.0213	4,304	3,779	8,083
	8-hour	10,000	2,792	0.018	2,792	2,176	4,968
NO ₂	1-hour	188	106.62	0.002	106.62	47.0	153.62
	Annual	100	2.66	0.077	2.58	3.8	6.46
PM ₁₀	24-hour	150	47.59	0.00091	47.59	60.0	107.59
PM _{2.5}	24-hour	35	6.33	0.00054	6.33	28.0	34.33
	Annual	12	2.17	0.0071	2.16	9.7	11.87
SO ₂	1-hour	196	102.63	0.0011	102.63	13.1	115.73
	3-hour	1,300	87.99	0.0011	87.98	13.1	101.09
<ol style="list-style-type: none"> 1-hour CO, 8-hour CO, 3-hour SO₂ results represent the highest of the second highest model concentration 1-hour NO₂ results represent the 98th percentile of the maximum daily concentration Annual NO₂ results represent the maximum annual average model concentration 24-hour PM₁₀ results represent the highest of the sixth highest model concentration 24-hour PM_{2.5} results represent the 98th percentile of the maximum daily model concentrations Annual PM_{2.5} results represent the 5-year annual average 1-hour SO₂ results represent the 99th percentile of the maximum daily concentration Facility and Offsite results are the respective contributions to the model concentration The total concentration is the sum of the model concentration and the background concentration 							

APPENDIX A

CENSUS BLOCK DESIGN CONCENTRATIONS

Tract Block Group	Carbon Monoxide (CO) - $\mu\text{g}/\text{m}^3$							
	1-hour: NAAQS = 40,000				8-hour: NAAQS = 10,000			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 101.01</i>								
<i>Block Group 1</i>	0.07	438.58	3,779	4,218	0.66	144.00	2,176	2,321
<i>Block Group 2</i>	0.14	300.26	3,779	4,079	0.004	63.45	2,176	2,239
<i>Block Group 3</i>	0.08	365.54	3,779	4,145	0.25	62.67	2,176	2,239
<i>Census Tract 101.02</i>								
<i>Block Group 1</i>	0.09	195.88	3,779	3,975	1.75	49.62	2,176	2,227
<i>Block Group 2</i>	0.26	210.19	3,779	3,989	1.64	71.83	2,176	2,249
<i>Block Group 3</i>	0.09	260.20	3,779	4,039	0.01	62.98	2,176	2,239
<i>Census Tract 101.03</i>								
<i>Block Group 1</i>	0.17	320.74	3,779	4,100	0.07	66.64	2,176	2,243
<i>Block Group 2</i>	0.08	357.57	3,779	4,137	0.07	82.02	2,176	2,258
<i>Census Tract 102.01</i>								
<i>Block Group 1</i>	0.44	352.89	3,779	4,132	0.14	83.09	2,176	2,259
<i>Block Group 2</i>	0.15	447.60	3,779	4,227	0.001	161.68	2,176	2,338
<i>Census Tract 102.04</i>								
<i>Block Group 1</i>	0.04	269.77	3,779	4,049	0.299	59.82	2,176	2,236
<i>Block Group 2</i>	0.35	321.50	3,779	4,101	0.53	64.64	2,176	2,241
<i>Census Tract 102.05</i>								
<i>Block Group 1</i>	0.001	635.07	3,779	4,414	0.001	429.12	2,176	2,605
<i>Block Group 2</i>	0.85	323.15	3,779	4,103	0.28	63.69	2,176	2,240
<i>Block Group 3</i>	0.24	265.41	3,779	4,045	0.27	50.41	2,176	2,227
<i>Block Group 4</i>	1.15	236.06	3,779	4,016	0.40	53.49	2,176	2,230
<i>Census Tract 103.01</i>								
<i>Block Group 3</i>	0.72	241.46	3,779	4,021	0.35	50.71	2,176	2,227
<i>Census Tract 103.03</i>								
<i>Block Group 1</i>	0.04	163.96	3,779	3,943	0.02	45.92	2,176	2,222
<i>Census Tract 103.04</i>								
<i>Block Group 1</i>	0.12	164.18	3,779	3,943	0.004	47.34	2,176	2,223
<i>Block Group 2</i>	0.06	177.98	3,779	3,957	0.25	49.81	2,176	2,226
<i>Census Tract 104.03</i>								
<i>Block Group 1</i>	1.05	250.65	3,779	4,031	0.27	51.72	2,176	2,228
<i>Block Group 2</i>	0.04	166.32	3,779	3,945	0.03	46.15	2,176	2,222
<i>Census Tract 104.04</i>								
<i>Block Group 1</i>	0.04	169.55	3,779	3,949	0.01	46.70	2,176	2,223
<i>Block Group 2</i>	0.04	182.09	3,779	3,961	0.39	47.46	2,176	2,224
<i>Census Tract 104.05</i>								
<i>Block Group 1</i>	0.06	179.44	3,779	3,959	0.004	50.71	2,176	2,227
<i>Block Group 2</i>	0.16	186.53	3,779	3,966	0.004	52.54	2,176	2,229
<i>Block Group 3</i>	0.06	181.87	3,779	3,961	0.01	48.22	2,176	2,224
<i>Census Tract 104.06</i>								
<i>Block Group 1</i>	0.10	194.54	3,779	3,974	0.004	45.21	2,176	2,221
<i>Block Group 2</i>	0.06	183.14	3,779	3,962	0.25	48.45	2,176	2,225
<i>Census Tract 105</i>								
<i>Block Group 1</i>	0.15	202.62	3,779	3,982	0.30	51.18	2,176	2,227
<i>Block Group 2</i>	0.11	218.38	3,779	3,997	0.004	49.88	2,176	2,226
<i>Census Tract 106.02</i>								
<i>Block Group 1</i>	0.13	284.46	3,779	4,064	0.004	46.62	2,176	2,223
<i>Census Tract 106.03</i>								
<i>Block Group 1</i>	0.04	192.72	3,779	3,972	0.005	45.39	2,176	2,221
<i>Block Group 2</i>	0.13	248.94	3,779	4,028	0.32	45.99	2,176	2,222
<i>Block Group 3</i>	0.13	217.82	3,779	3,997	0.12	47.83	2,176	2,224
<i>Census Tract 106.04</i>								
<i>Block Group 1</i>	0.20	219.37	3,779	3,999	0.34	54.58	2,176	2,231
<i>Block Group 2</i>	0.43	258.59	3,779	4,038	0.42	55.97	2,176	2,232

Tract Block Group	Carbon Monoxide (CO) - $\mu\text{g}/\text{m}^3$							
	1-hour: NAAQS = 40,000				8-hour: NAAQS = 10,000			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 107</i>								
<i>Block Group 2</i>	0.06	229.11	3,779	4,008	0.01	50.78	2,176	2,227
<i>Census Tract 108.01</i>								
<i>Block Group 1</i>	0.13	321.46	3,779	4,101	0.31	51.48	2,176	2,228
<i>Block Group 2</i>	0.13	253.30	3,779	4,032	0.13	60.95	2,176	2,237
<i>Block Group 3</i>	0.18	284.83	3,779	4,064	0.00	48.50	2,176	2,225
<i>Census Tract 108.02</i>								
<i>Block Group 3</i>	0.58	557.39	3,779	4,337	0.001	392.71	2,176	2,569
<i>Census Tract 110</i>								
<i>Block Group 3</i>	0.17	201.71	3,779	3,981	0.01	49.31	2,176	2,225
<i>Census Tract 111</i>								
<i>Block Group 1</i>	0.18	217.84	3,779	3,997	0.04	53.02	2,176	2,229
<i>Block Group 3</i>	0.09	243.62	3,779	4,023	0.01	50.02	2,176	2,226
<i>Census Tract 112</i>								
<i>Block Group 1</i>	0.09	310.52	3,779	4,090	0.04	60.19	2,176	2,236
<i>Census Tract 113.01</i>								
<i>Block Group 2</i>	0.09	275.86	3,779	4,055	0.11	66.83	2,176	2,243
<i>Census Tract 113.02</i>								
<i>Block Group 1</i>	0.09	238.88	3,779	4,018	0.11	51.18	2,176	2,227
<i>Block Group 2</i>	0.04	233.43	3,779	4,012	0.004	51.63	2,176	2,228
<i>Census Tract 114.01</i>								
<i>Block Group 1</i>	0.15	287.58	3,779	4,067	0.60	62.90	2,176	2,239
<i>Block Group 2</i>	0.22	295.69	3,779	4,075	0.003	76.75	2,176	2,253
<i>Block Group 3</i>	0.22	385.90	3,779	4,165	0.002	88.89	2,176	2,265
<i>Census Tract 114.02</i>								
<i>Block Group 1</i>	0.23	323.32	3,779	4,103	0.001	143.16	2,176	2,319
<i>Block Group 2</i>	0.14	384.80	3,779	4,164	0.001	118.14	2,176	2,294
<i>Block Group 3</i>	0.07	266.11	3,779	4,045	0.27	64.17	2,176	2,240
<i>Census Tract 115</i>								
<i>Block Group 1</i>	0.07	235.16	3,779	4,014	0.004	56.33	2,176	2,232
<i>Block Group 3</i>	0.10	225.55	3,779	4,005	0.55	56.89	2,176	2,233
<i>Block Group 4</i>	0.15	260.64	3,779	4,040	0.58	58.59	2,176	2,235
<i>Block Group 5</i>	0.10	259.63	3,779	4,039	0.003	62.91	2,176	2,239
<i>Census Tract 116.01</i>								
<i>Block Group 1</i>	0.08	251.76	3,779	4,031	0.003	63.12	2,176	2,239
<i>Block Group 2</i>	0.08	263.72	3,779	4,043	0.004	69.69	2,176	2,246
<i>Census Tract 116.02</i>								
<i>Block Group 2</i>	0.10	202.20	3,779	3,981	0.004	65.54	2,176	2,242
<i>Census Tract 117.01</i>								
<i>Block Group 1</i>	0.12	271.74	3,779	4,051	0.002	71.38	2,176	2,247
<i>Block Group 2</i>	0.12	240.29	3,779	4,019	0.004	60.52	2,176	2,237
<i>Census Tract 117.02</i>								
<i>Block Group 2</i>	0.07	204.71	3,779	3,984	0.004	55.30	2,176	2,231
<i>Census Tract 118.01</i>								
<i>Block Group 1</i>	0.09	224.50	3,779	4,004	0.11	50.82	2,176	2,227
<i>Block Group 2</i>	0.18	348.79	3,779	4,128	0.004	51.34	2,176	2,227
<i>Block Group 3</i>	0.19	280.78	3,779	4,060	0.004	52.08	2,176	2,228
<i>Block Group 4</i>	0.09	297.36	3,779	4,076	0.01	50.38	2,176	2,226
<i>Census Tract 118.02</i>								
<i>Block Group 1</i>	0.10	241.46	3,779	4,021	0.01	53.38	2,176	2,229
<i>Block Group 2</i>	0.10	268.89	3,779	4,048	0.004	59.28	2,176	2,235
<i>Block Group 3</i>	0.19	272.54	3,779	4,052	0.004	59.97	2,176	2,236

Tract Block Group	Carbon Monoxide (CO) - $\mu\text{g}/\text{m}^3$							
	1-hour: NAAQS = 40,000				8-hour: NAAQS = 10,000			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 120.02</i>								
<i>Block Group 1</i>	0.18	240.68	3,779	4,020	0.37	50.25	2,176	2,227
<i>Block Group 3</i>	0.18	226.82	3,779	4,006	0.49	48.69	2,176	2,225
<i>Block Group 4</i>	0.09	257.35	3,779	4,036	0.67	55.08	2,176	2,232
<i>Census Tract 120.03</i>								
<i>Block Group 1</i>	0.13	201.31	3,779	3,980	0.004	52.07	2,176	2,228
<i>Block Group 2</i>	0.18	204.55	3,779	3,984	0.01	54.34	2,176	2,230
<i>Block Group 3</i>	0.18	253.05	3,779	4,032	0.004	55.86	2,176	2,232
<i>Census Tract 120.04</i>								
<i>Block Group 1</i>	0.11	161.93	3,779	3,941	0.36	47.65	2,176	2,224
<i>Block Group 2</i>	0.16	154.37	3,779	3,934	0.36	46.56	2,176	2,223
<i>Census Tract 121.03</i>								
<i>Block Group 1</i>	0.13	243.60	3,779	4,023	0.004	63.45	2,176	2,239
<i>Census Tract 121.04</i>								
<i>Block Group 1</i>	0.19	253.51	3,779	4,033	0.004	59.27	2,176	2,235
<i>Block Group 2</i>	0.17	272.36	3,779	4,052	0.004	69.06	2,176	2,245
<i>Block Group 3</i>	0.13	254.15	3,779	4,033	1.08	54.67	2,176	2,232
<i>Census Tract 121.05</i>								
<i>Block Group 1</i>	5.02	294.38	3,779	4,078	0.71	62.16	2,176	2,239
<i>Block Group 2</i>	5.05	281.76	3,779	4,066	0.79	60.87	2,176	2,238
<i>Census Tract 121.06</i>								
<i>Block Group 1</i>	0.89	236.21	3,779	4,016	0.004	59.56	2,176	2,236
<i>Block Group 2</i>	0.45	284.48	3,779	4,064	0.81	62.08	2,176	2,239
<i>Census Tract 122.01</i>								
<i>Block Group 1</i>	0.33	285.66	3,779	4,065	0.002	83.63	2,176	2,260
<i>Block Group 2</i>	0.21	441.56	3,779	4,221	0.002	123.39	2,176	2,299
<i>Block Group 3</i>	0.18	411.60	3,779	4,191	0.002	103.99	2,176	2,280
<i>Census Tract 122.02</i>								
<i>Block Group 1</i>	0.27	392.11	3,779	4,171	0.15	75.09	2,176	2,251
<i>Block Group 2</i>	0.18	381.88	3,779	4,161	0.04	81.52	2,176	2,258
<i>Block Group 3</i>	0.18	303.34	3,779	4,083	0.83	73.38	2,176	2,250
<i>Census Tract 122.03</i>								
<i>Block Group 1</i>	0.21	303.71	3,779	4,083	0.002	92.24	2,176	2,268
<i>Block Group 2</i>	0.18	293.97	3,779	4,073	0.003	71.58	2,176	2,248
<i>Block Group 3</i>	0.18	288.15	3,779	4,067	0.003	79.01	2,176	2,255
<i>Census Tract 123.01</i>								
<i>Block Group 1</i>	3.04	388.84	3,779	4,171	1.44	117.24	2,176	2,295
<i>Block Group 2</i>	3.22	375.36	3,779	4,158	0.08	110.29	2,176	2,286
<i>Block Group 3</i>	13.57	740.31	3,779	4,533	0.66	152.40	2,176	2,329
<i>Block Group 4</i>	3.87	340.92	3,779	4,124	1.44	95.46	2,176	2,273
<i>Census Tract 123.04</i>								
<i>Block Group 1</i>	13.63	824.31	3,779	4,617	3.58	127.03	2,176	2,307
<i>Block Group 2</i>	23.85	812.18	3,779	4,615	0.37	133.57	2,176	2,310
<i>Block Group 3</i>	14.82	890.90	3,779	4,685	5.11	157.38	2,176	2,338
<i>Block Group 4</i>	14.98	1721.09	3,779	5,515	0.23	462.60	2,176	2,639
<i>Census Tract 123.05</i>								
<i>Block Group 1</i>	0.33	1132.49	3,779	4,912	0.20	162.00	2,176	2,338
<i>Census Tract 124.02</i>								
<i>Block Group 1</i>	0.08	346.11	3,779	4,125	0.83	71.60	2,176	2,248
<i>Block Group 2</i>	0.26	429.70	3,779	4,209	0.10	76.82	2,176	2,253
<i>Block Group 3</i>	0.18	356.22	3,779	4,135	0.04	102.56	2,176	2,279
<i>Block Group 4</i>	0.18	490.60	3,779	4,270	0.15	92.69	2,176	2,269

Tract Block Group	Carbon Monoxide (CO) - $\mu\text{g}/\text{m}^3$							
	1-hour: NAAQS = 40,000				8-hour: NAAQS = 10,000			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 124.03</i>								
<i>Block Group 1</i>	0.21	441.25	3,779	4,220	0.002	152.48	2,176	2,328
<i>Block Group 2</i>	1.74	518.98	3,779	4,300	0.005	379.21	2,176	2,555
<i>Census Tract 124.04</i>								
<i>Block Group 1</i>	0.25	396.09	3,779	4,175	0.04	89.69	2,176	2,266
<i>Block Group 2</i>	0.00	818.53	3,779	4,598	0.001	639.73	2,176	2,816
<i>Block Group 3</i>	0.22	569.98	3,779	4,349	0.002	256.41	2,176	2,432
<i>Census Tract 125.06</i>								
<i>Block Group 1</i>	4.87	509.94	3,779	4,294	0.54	96.04	2,176	2,273
<i>Block Group 2</i>	7.91	417.35	3,779	4,204	0.13	79.87	2,176	2,256
<i>Block Group 3</i>	4.96	403.33	3,779	4,187	1.05	77.40	2,176	2,254
<i>Census Tract 125.08</i>								
<i>Block Group 1</i>	0.11	356.44	3,779	4,136	0.56	74.34	2,176	2,251
<i>Block Group 2</i>	4.89	380.76	3,779	4,165	0.54	82.69	2,176	2,259
<i>Census Tract 125.09</i>								
<i>Block Group 1</i>	0.05	292.02	3,779	4,071	0.09	72.69	2,176	2,249
<i>Block Group 2</i>	0.15	368.71	3,779	4,148	0.35	101.14	2,176	2,277
<i>Census Tract 125.1</i>								
<i>Block Group 1</i>	3.51	265.91	3,779	4,048	0.78	55.32	2,176	2,232
<i>Block Group 2</i>	6.53	310.52	3,779	4,096	1.13	64.41	2,176	2,242
<i>Block Group 3</i>	0.49	307.45	3,779	4,087	0.05	57.29	2,176	2,233
<i>Census Tract 125.11</i>								
<i>Block Group 1</i>	6.89	385.92	3,779	4,172	0.49	69.92	2,176	2,246
<i>Block Group 2</i>	7.68	414.60	3,779	4,201	1.07	73.61	2,176	2,251
<i>Block Group 3</i>	0.67	286.65	3,779	4,066	0.003	64.03	2,176	2,240
<i>Census Tract 125.12</i>								
<i>Block Group 2</i>	0.14	279.51	3,779	4,059	0.003	64.84	2,176	2,241
<i>Census Tract 125.13</i>								
<i>Block Group 1</i>	0.11	561.87	3,779	4,341	0.05	98.14	2,176	2,274
<i>Block Group 2</i>	0.11	420.97	3,779	4,200	0.55	74.32	2,176	2,251
<i>Census Tract 125.14</i>								
<i>Block Group 1</i>	0.14	336.02	3,779	4,115	0.002	74.16	2,176	2,250
<i>Census Tract 125.15</i>								
<i>Block Group 1</i>	0.07	347.37	3,779	4,126	0.15	77.20	2,176	2,253
<i>Census Tract 125.16</i>								
<i>Block Group 2</i>	0.14	303.06	3,779	4,082	0.002	70.35	2,176	2,246
<i>Block Group 3</i>	0.14	261.38	3,779	4,041	0.003	63.47	2,176	2,239
<i>Census Tract 125.17</i>								
<i>Block Group 1</i>	0.07	303.81	3,779	4,083	0.31	85.01	2,176	2,261
<i>Block Group 3</i>	0.15	335.01	3,779	4,114	0.002	88.01	2,176	2,264
<i>Census Tract 126.07</i>								
<i>Block Group 1</i>	0.12	310.45	3,779	4,090	0.05	87.38	2,176	2,263
<i>Block Group 2</i>	0.07	348.25	3,779	4,127	0.003	99.68	2,176	2,276
<i>Census Tract 126.08</i>								
<i>Block Group 1</i>	0.11	301.70	3,779	4,081	0.004	95.27	2,176	2,271
<i>Block Group 3</i>	0.09	369.96	3,779	4,149	0.003	106.57	2,176	2,283
<i>Block Group 4</i>	0.11	344.66	3,779	4,124	0.002	109.85	2,176	2,286
<i>Census Tract 126.13</i>								
<i>Block Group 2</i>	0.14	324.23	3,779	4,103	0.09	79.74	2,176	2,256
<i>Block Group 3</i>	0.14	361.21	3,779	4,140	0.09	94.98	2,176	2,271
<i>Block Group 4</i>	0.18	307.32	3,779	4,087	0.09	83.76	2,176	2,260
<i>Census Tract 126.14</i>								
<i>Block Group 1</i>	0.11	365.82	3,779	4,145	0.002	101.38	2,176	2,277

Tract Block Group	Carbon Monoxide (CO) - $\mu\text{g}/\text{m}^3$							
	1-hour: NAAQS = 40,000				8-hour: NAAQS = 10,000			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 126.15</i>								
<i>Block Group 2</i>	0.11	394.93	3,779	4,174	0.002	116.10	2,176	2,292
<i>Block Group 3</i>	0.06	381.08	3,779	4,160	0.003	119.66	2,176	2,296
<i>Census Tract 126.16</i>								
<i>Block Group 1</i>	0.15	317.87	3,779	4,097	0.09	107.19	2,176	2,283
<i>Block Group 2</i>	0.18	369.03	3,779	4,148	0.09	91.74	2,176	2,268
<i>Census Tract 126.17</i>								
<i>Block Group 1</i>	0.18	340.00	3,779	4,119	0.09	88.05	2,176	2,264
<i>Block Group 2</i>	0.05	333.19	3,779	4,112	0.003	95.63	2,176	2,272
<i>Census Tract 127</i>								
<i>Block Group 2</i>	0.02	3262.12	3,779	7,041	0.02	2791.87	2,176	4,968
<i>Block Group 3</i>	15.78	300.12	3,779	4,095	2.93	104.00	2,176	2,283
<i>Block Group 4</i>	0.12	281.25	3,779	4,060	3.41	115.64	2,176	2,295
<i>Census Tract 128</i>								
<i>Block Group 1</i>	0.12	266.16	3,779	4,045	0.003	69.00	2,176	2,245
<i>Block Group 2</i>	0.12	246.78	3,779	4,026	2.22	75.39	2,176	2,254
<i>Block Group 4</i>	0.12	284.00	3,779	4,063	0.003	73.19	2,176	2,249
<i>Census Tract 129</i>								
<i>Block Group 3</i>	0.09	235.51	3,779	4,015	2.18	59.24	2,176	2,237
<i>Block Group 4</i>	0.07	255.10	3,779	4,034	0.004	62.34	2,176	2,238
<i>Census Tract 130.02</i>								
<i>Block Group 1</i>	0.09	309.59	3,779	4,089	0.09	73.45	2,176	2,250
<i>Block Group 3</i>	0.09	300.84	3,779	4,080	0.09	69.37	2,176	2,245
<i>Census Tract 130.03</i>								
<i>Block Group 1</i>	0.15	247.41	3,779	4,027	0.09	70.54	2,176	2,247
<i>Block Group 2</i>	0.18	252.86	3,779	4,032	0.09	74.50	2,176	2,251
<i>Census Tract 130.04</i>								
<i>Block Group 3</i>	0.15	284.63	3,779	4,064	2.79	80.25	2,176	2,259
<i>Census Tract 131.02</i>								
<i>Block Group 1</i>	16.09	260.40	3,779	4,055	0.02	91.76	2,176	2,268
<i>Block Group 2</i>	0.07	337.05	3,779	4,116	0.02	101.26	2,176	2,277
<i>Census Tract 131.04</i>								
<i>Block Group 2</i>	0.17	294.00	3,779	4,073	0.09	76.79	2,176	2,253
<i>Block Group 3</i>	0.17	283.27	3,779	4,062	2.39	71.10	2,176	2,249
<i>Census Tract 131.06</i>								
<i>Block Group 2</i>	0.17	279.12	3,779	4,058	3.26	93.00	2,176	2,272
<i>Block Group 3</i>	0.05	259.35	3,779	4,038	2.42	87.10	2,176	2,266
<i>Census Tract 132.03</i>								
<i>Block Group 1</i>	0.08	318.75	3,779	4,098	3.08	106.84	2,176	2,286
<i>Block Group 2</i>	0.04	309.55	3,779	4,089	0.004	107.42	2,176	2,283
<i>Census Tract 132.04</i>								
<i>Block Group 1</i>	0.04	293.70	3,779	4,073	2.97	90.86	2,176	2,270
<i>Census Tract 132.05</i>								
<i>Block Group 2</i>	0.10	276.92	3,779	4,056	3.01	96.80	2,176	2,276
<i>Census Tract 132.06</i>								
<i>Block Group 2</i>	0.09	302.18	3,779	4,081	2.56	80.11	2,176	2,259
<i>Block Group 3</i>	0.09	301.37	3,779	4,080	3.23	102.88	2,176	2,282
<i>Census Tract 132.07</i>								
<i>Block Group 1</i>	10.26	276.31	3,779	4,066	2.74	93.63	2,176	2,272
<i>Census Tract 133.03</i>								
<i>Block Group 2</i>	0.09	259.98	3,779	4,039	2.78	97.07	2,176	2,276
<i>Census Tract 133.05</i>								
<i>Block Group 2</i>	0.08	257.91	3,779	4,037	0.005	85.05	2,176	2,261
<i>Block Group 4</i>	9.39	251.20	3,779	4,040	2.64	76.68	2,176	2,255

Tract Block Group	Carbon Monoxide (CO) - $\mu\text{g}/\text{m}^3$							
	1-hour: NAAQS = 40,000				8-hour: NAAQS = 10,000			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 133.06</i>								
<i>Block Group 2</i>	8.99	243.75	3,779	4,032	2.59	73.82	2,176	2,252
<i>Census Tract 133.07</i>								
<i>Block Group 2</i>	8.91	235.49	3,779	4,023	1.92	70.47	2,176	2,248
<i>Census Tract 133.08</i>								
<i>Block Group 2</i>	3.24	244.69	3,779	4,027	2.54	72.14	2,176	2,251
<i>Census Tract 133.09</i>								
<i>Block Group 2</i>	0.07	286.61	3,779	4,066	2.03	62.98	2,176	2,241
<i>Census Tract 134.01</i>								
<i>Block Group 1</i>	0.17	265.67	3,779	4,045	1.06	81.68	2,176	2,259
<i>Census Tract 134.02</i>								
<i>Block Group 1</i>	0.08	256.85	3,779	4,036	2.59	83.95	2,176	2,263
<i>Block Group 3</i>	0.17	241.39	3,779	4,021	2.57	89.68	2,176	2,268
<i>Census Tract 135</i>								
<i>Block Group 1</i>	0.15	239.61	3,779	4,019	3.05	87.05	2,176	2,266
<i>Block Group 2</i>	0.09	278.55	3,779	4,058	1.38	92.29	2,176	2,270
<i>Census Tract 136</i>								
<i>Block Group 1</i>	0.09	233.85	3,779	4,013	0.09	62.29	2,176	2,238
<i>Block Group 4</i>	0.09	230.88	3,779	4,010	1.94	72.19	2,176	2,250
<i>Census Tract 137</i>								
<i>Block Group 1</i>	0.04	218.13	3,779	3,997	1.27	66.46	2,176	2,244
<i>Census Tract 138.01</i>								
<i>Block Group 2</i>	0.09	267.68	3,779	4,047	2.35	81.27	2,176	2,260
<i>Census Tract 138.02</i>								
<i>Block Group 4</i>	0.08	246.13	3,779	4,025	2.30	68.38	2,176	2,247
<i>Census Tract 139.02</i>								
<i>Block Group 1</i>	0.17	239.93	3,779	4,019	2.69	80.58	2,176	2,259
<i>Block Group 3</i>	0.17	234.93	3,779	4,014	2.26	63.25	2,176	2,242
<i>Census Tract 139.03</i>								
<i>Block Group 1</i>	0.08	237.13	3,779	4,016	2.25	68.96	2,176	2,247
<i>Block Group 2</i>	3.33	218.51	3,779	4,001	2.16	64.04	2,176	2,242
<i>Census Tract 140.01</i>								
<i>Block Group 1</i>	0.15	219.08	3,779	3,998	2.41	77.05	2,176	2,255
<i>Block Group 3</i>	0.09	257.67	3,779	4,037	2.54	75.51	2,176	2,254
<i>Census Tract 140.02</i>								
<i>Block Group 1</i>	0.15	226.57	3,779	4,006	0.98	77.57	2,176	2,255
<i>Census Tract 141.01</i>								
<i>Block Group 2</i>	16.09	332.67	3,779	4,128	2.49	88.88	2,176	2,267
<i>Block Group 4</i>	0.07	318.49	3,779	4,098	2.48	83.31	2,176	2,262
<i>Census Tract 141.02</i>								
<i>Block Group 1</i>	0.06	289.19	3,779	4,068	0.004	86.36	2,176	2,262
<i>Block Group 2</i>	11.63	351.38	3,779	4,142	2.01	98.76	2,176	2,277
<i>Block Group 3</i>	5.15	294.17	3,779	4,078	2.69	83.95	2,176	2,263
<i>Census Tract 141.03</i>								
<i>Block Group 1</i>	11.65	320.88	3,779	4,112	2.74	98.64	2,176	2,277
<i>Block Group 2</i>	13.98	437.41	3,779	4,230	3.26	114.69	2,176	2,294
<i>Block Group 3</i>	9.74	287.21	3,779	4,076	2.51	94.42	2,176	2,273
<i>Census Tract 142.01</i>								
<i>Block Group 2</i>	11.22	764.60	3,779	4,555	4.31	151.68	2,176	2,332
<i>Census Tract 142.02</i>								
<i>Block Group 1</i>	0.11	610.56	3,779	4,390	0.002	144.69	2,176	2,321
<i>Block Group 2</i>	0.02	4304.32	3,779	8,083	0.02	2486.63	2,176	4,663

Tract Block Group	Carbon Monoxide (CO) - $\mu\text{g}/\text{m}^3$							
	1-hour: NAAQS = 40,000				8-hour: NAAQS = 10,000			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 143</i>								
<i>Block Group 1</i>	0.10	233.75	3,779	4,013	2.82	86.39	2,176	2,265
<i>Block Group 2</i>	0.08	250.64	3,779	4,030	2.80	90.94	2,176	2,270
<i>Block Group 3</i>	0.08	295.67	3,779	4,075	2.42	84.28	2,176	2,263
<i>Census Tract 144.01</i>								
<i>Block Group 1</i>	0.10	609.61	3,779	4,389	0.001	333.69	2,176	2,510
<i>Block Group 2</i>	0.12	476.73	3,779	4,256	0.002	120.51	2,176	2,297
<i>Block Group 3</i>	0.24	526.64	3,779	4,306	0.002	184.65	2,176	2,361
<i>Census Tract 144.02</i>								
<i>Block Group 1</i>	0.24	435.74	3,779	4,215	0.002	120.27	2,176	2,296
<i>Block Group 2</i>	0.28	503.04	3,779	4,282	0.002	199.56	2,176	2,376
<i>Block Group 3</i>	0.11	389.43	3,779	4,169	0.07	101.95	2,176	2,278
<i>Census Tract 144.03</i>								
<i>Block Group 1</i>	0.19	362.26	3,779	4,141	0.02	80.71	2,176	2,257
<i>Block Group 2</i>	0.09	369.42	3,779	4,149	0.003	106.70	2,176	2,283
<i>Census Tract 144.04</i>								
<i>Block Group 1</i>	0.11	415.81	3,779	4,195	0.003	122.51	2,176	2,299
<i>Block Group 2</i>	0.10	600.57	3,779	4,380	0.19	205.25	2,176	2,381
<i>Census Tract 145.01</i>								
<i>Block Group 2</i>	0.11	322.59	3,779	4,102	0.003	89.45	2,176	2,265
<i>Block Group 3</i>	0.11	285.83	3,779	4,065	2.71	83.41	2,176	2,262
<i>Census Tract 145.02</i>								
<i>Block Group 2</i>	0.11	299.08	3,779	4,078	0.02	89.40	2,176	2,265
<i>Block Group 3</i>	0.07	317.33	3,779	4,096	0.03	98.65	2,176	2,275
<i>Census Tract 9504</i>								
<i>Block Group 1</i>	0.13	178.88	3,779	3,958	0.01	66.05	2,176	2,242
<i>Census Tract 9505</i>								
<i>Block Group 2</i>	0.13	221.26	3,779	4,000	0.003	73.32	2,176	2,249
<i>Census Tract 9506</i>								
<i>Block Group 1</i>	0.14	287.46	3,779	4,067	0.003	77.43	2,176	2,253
<i>Census Tract 9507</i>								
<i>Block Group 1</i>	0.06	191.44	3,779	3,971	0.01	53.77	2,176	2,230
<i>Census Tract 9800.01</i>								
<i>Block Group 1</i>	0.32	459.95	3,779	4,239	0.001	169.31	2,176	2,345
<i>Census Tract 9801</i>								
<i>Block Group 1</i>	0.07	348.56	3,779	4,128	2.64	89.09	2,176	2,268
<i>Census Tract 9900</i>								
<i>Block Group 0</i>	5.16	499.57	3,779	4,284	0.94	102.59	2,176	2,280

Tract Block Group	Nitrogen Dioxide (NO ₂) - µg/m ³							
	1-hour: NAAQS = 188				Annual: NAAQS = 100			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 101.01</i>								
<i>Block Group 1</i>	0.004	73.22	47.00	120.23	0.06	0.45	3.80	4.31
<i>Block Group 2</i>	0.002	13.00	47.00	60.00	0.10	0.09	3.80	3.99
<i>Block Group 3</i>	0.01	14.47	47.00	61.48	0.06	0.12	3.80	3.99
<i>Census Tract 101.02</i>								
<i>Block Group 1</i>	1.08	8.83	47.00	56.92	0.12	0.08	3.80	3.99
<i>Block Group 2</i>	0.85	11.20	47.00	59.05	0.20	0.09	3.80	4.09
<i>Block Group 3</i>	0.02	11.93	47.00	58.95	0.14	0.08	3.80	4.02
<i>Census Tract 101.03</i>								
<i>Block Group 1</i>	0.01	12.80	47.00	59.80	0.14	0.08	3.80	4.02
<i>Block Group 2</i>	0.004	15.82	47.00	62.82	0.07	0.13	3.80	3.99
<i>Census Tract 102.01</i>								
<i>Block Group 1</i>	1.56	16.29	47.00	64.86	0.05	0.20	3.80	4.05
<i>Block Group 2</i>	0.02	22.08	47.00	69.10	0.06	0.25	3.80	4.11
<i>Census Tract 102.04</i>								
<i>Block Group 1</i>	0.02	19.38	47.00	66.40	0.05	0.17	3.80	4.02
<i>Block Group 2</i>	0.05	18.90	47.00	65.95	0.05	0.18	3.80	4.02
<i>Census Tract 102.05</i>								
<i>Block Group 1</i>	0.003	28.54	47.00	75.54	0.06	0.68	3.80	4.54
<i>Block Group 2</i>	1.47	16.84	47.00	65.31	0.04	0.15	3.80	3.99
<i>Block Group 3</i>	0.29	11.19	47.00	58.48	0.04	0.13	3.80	3.96
<i>Block Group 4</i>	0.01	12.12	47.00	59.13	0.04	0.13	3.80	3.97
<i>Census Tract 103.01</i>								
<i>Block Group 3</i>	1.61	11.82	47.00	60.43	0.04	0.12	3.80	3.96
<i>Census Tract 103.03</i>								
<i>Block Group 1</i>	0.03	9.70	47.00	56.73	0.04	0.10	3.80	3.94
<i>Census Tract 103.04</i>								
<i>Block Group 1</i>	0.01	9.97	47.00	56.98	0.04	0.09	3.80	3.93
<i>Block Group 2</i>	0.05	9.77	47.00	56.82	0.04	0.10	3.80	3.93
<i>Census Tract 104.03</i>								
<i>Block Group 1</i>	0.01	11.25	47.00	58.27	0.04	0.12	3.80	3.96
<i>Block Group 2</i>	0.03	10.20	47.00	57.22	0.04	0.11	3.80	3.95
<i>Census Tract 104.04</i>								
<i>Block Group 1</i>	0.01	9.91	47.00	56.92	0.04	0.10	3.80	3.94
<i>Block Group 2</i>	0.01	10.96	47.00	57.97	0.04	0.12	3.80	3.96
<i>Census Tract 104.05</i>								
<i>Block Group 1</i>	0.01	10.58	47.00	57.58	0.04	0.10	3.80	3.94
<i>Block Group 2</i>	0.01	11.61	47.00	58.61	0.04	0.11	3.80	3.95
<i>Block Group 3</i>	0.04	11.36	47.00	58.40	0.04	0.10	3.80	3.95
<i>Census Tract 104.06</i>								
<i>Block Group 1</i>	0.04	11.65	47.00	58.69	0.04	0.11	3.80	3.96
<i>Block Group 2</i>	0.01	11.12	47.00	58.13	0.04	0.11	3.80	3.95
<i>Census Tract 105</i>								
<i>Block Group 1</i>	0.03	12.55	47.00	59.58	0.04	0.13	3.80	3.97
<i>Block Group 2</i>	0.02	13.83	47.00	60.85	0.04	0.13	3.80	3.97
<i>Census Tract 106.02</i>								
<i>Block Group 1</i>	0.01	18.06	47.00	65.06	0.05	0.15	3.80	4.00
<i>Census Tract 106.03</i>								
<i>Block Group 1</i>	0.07	13.66	47.00	60.73	0.05	0.13	3.80	3.98
<i>Block Group 2</i>	0.02	15.68	47.00	62.71	0.05	0.14	3.80	3.99
<i>Block Group 3</i>	0.03	13.87	47.00	60.90	0.05	0.13	3.80	3.98
<i>Census Tract 106.04</i>								
<i>Block Group 1</i>	0.08	12.25	47.00	59.33	0.04	0.13	3.80	3.97
<i>Block Group 2</i>	0.03	15.29	47.00	62.31	0.04	0.15	3.80	3.99

Tract Block Group	Nitrogen Dioxide (NO ₂) - µg/m ³							
	1-hour: NAAQS = 188				Annual: NAAQS = 100			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 107</i>								
<i>Block Group 2</i>	0.01	15.30	47.00	62.32	0.05	0.14	3.80	3.98
<i>Census Tract 108.01</i>								
<i>Block Group 1</i>	0.01	19.51	47.00	66.52	0.05	0.16	3.80	4.01
<i>Block Group 2</i>	0.03	17.16	47.00	64.19	0.05	0.16	3.80	4.01
<i>Block Group 3</i>	0.01	16.69	47.00	63.70	0.05	0.15	3.80	4.00
<i>Census Tract 108.02</i>								
<i>Block Group 3</i>	0.002	106.62	47.00	153.62	0.05	0.65	3.80	4.50
<i>Census Tract 110</i>								
<i>Block Group 3</i>	0.01	12.68	47.00	59.69	0.04	0.12	3.80	3.96
<i>Census Tract 111</i>								
<i>Block Group 1</i>	0.03	13.05	47.00	60.08	0.04	0.12	3.80	3.97
<i>Block Group 3</i>	0.01	13.29	47.00	60.29	0.04	0.12	3.80	3.97
<i>Census Tract 112</i>								
<i>Block Group 1</i>	0.01	15.53	47.00	62.55	0.05	0.14	3.80	3.99
<i>Census Tract 113.01</i>								
<i>Block Group 2</i>	0.02	15.39	47.00	62.41	0.05	0.15	3.80	3.99
<i>Census Tract 113.02</i>								
<i>Block Group 1</i>	0.01	16.34	47.00	63.35	0.05	0.16	3.80	4.01
<i>Block Group 2</i>	0.03	15.08	47.00	62.10	0.04	0.15	3.80	4.00
<i>Census Tract 114.01</i>								
<i>Block Group 1</i>	0.05	15.35	47.00	62.39	0.05	0.17	3.80	4.02
<i>Block Group 2</i>	0.01	18.36	47.00	65.38	0.05	0.20	3.80	4.05
<i>Block Group 3</i>	0.003	16.54	47.00	63.54	0.05	0.20	3.80	4.05
<i>Census Tract 114.02</i>								
<i>Block Group 1</i>	0.01	21.86	47.00	68.87	0.05	0.23	3.80	4.08
<i>Block Group 2</i>	0.02	20.44	47.00	67.46	0.05	0.23	3.80	4.08
<i>Block Group 3</i>	0.03	15.33	47.00	62.37	0.05	0.16	3.80	4.01
<i>Census Tract 115</i>								
<i>Block Group 1</i>	0.01	15.15	47.00	62.16	0.05	0.15	3.80	4.00
<i>Block Group 3</i>	0.01	15.70	47.00	62.71	0.04	0.16	3.80	4.00
<i>Block Group 4</i>	0.04	15.90	47.00	62.94	0.05	0.16	3.80	4.01
<i>Block Group 5</i>	0.02	18.19	47.00	65.21	0.05	0.17	3.80	4.01
<i>Census Tract 116.01</i>								
<i>Block Group 1</i>	0.01	18.21	47.00	65.22	0.05	0.15	3.80	4.00
<i>Block Group 2</i>	0.01	16.78	47.00	63.78	0.05	0.14	3.80	3.99
<i>Census Tract 116.02</i>								
<i>Block Group 2</i>	0.01	15.84	47.00	62.85	0.05	0.14	3.80	3.99
<i>Census Tract 117.01</i>								
<i>Block Group 1</i>	0.01	16.77	47.00	63.77	0.04	0.16	3.80	4.00
<i>Block Group 2</i>	0.01	15.58	47.00	62.58	0.05	0.14	3.80	3.99
<i>Census Tract 117.02</i>								
<i>Block Group 2</i>	0.04	16.09	47.00	63.13	0.05	0.14	3.80	3.99
<i>Census Tract 118.01</i>								
<i>Block Group 1</i>	0.01	14.29	47.00	61.30	0.05	0.13	3.80	3.98
<i>Block Group 2</i>	0.004	14.19	47.00	61.20	0.05	0.14	3.80	3.98
<i>Block Group 3</i>	0.01	14.88	47.00	61.89	0.05	0.14	3.80	3.99
<i>Block Group 4</i>	0.01	13.60	47.00	60.60	0.04	0.13	3.80	3.97
<i>Census Tract 118.02</i>								
<i>Block Group 1</i>	0.01	12.02	47.00	59.03	0.04	0.11	3.80	3.95
<i>Block Group 2</i>	0.004	12.86	47.00	59.86	0.04	0.12	3.80	3.96
<i>Block Group 3</i>	0.01	13.51	47.00	60.52	0.05	0.12	3.80	3.97

Tract Block Group	Nitrogen Dioxide (NO ₂) - µg/m ³							
	1-hour: NAAQS = 188				Annual: NAAQS = 100			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 120.02</i>								
<i>Block Group 1</i>	0.05	11.89	47.00	58.94	0.04	0.10	3.80	3.94
<i>Block Group 3</i>	0.61	10.47	47.00	58.08	0.04	0.09	3.80	3.93
<i>Block Group 4</i>	0.01	12.21	47.00	59.22	0.04	0.11	3.80	3.95
<i>Census Tract 120.03</i>								
<i>Block Group 1</i>	0.02	10.90	47.00	57.92	0.04	0.10	3.80	3.94
<i>Block Group 2</i>	0.01	11.44	47.00	58.44	0.04	0.10	3.80	3.94
<i>Block Group 3</i>	0.03	12.90	47.00	59.92	0.04	0.12	3.80	3.96
<i>Census Tract 120.04</i>								
<i>Block Group 1</i>	0.01	10.57	47.00	57.58	0.04	0.09	3.80	3.93
<i>Block Group 2</i>	0.08	10.24	47.00	57.32	0.03	0.10	3.80	3.93
<i>Census Tract 121.03</i>								
<i>Block Group 1</i>	0.02	14.39	47.00	61.41	0.04	0.13	3.80	3.97
<i>Census Tract 121.04</i>								
<i>Block Group 1</i>	0.02	14.42	47.00	61.44	0.05	0.13	3.80	3.98
<i>Block Group 2</i>	0.04	19.98	47.00	67.02	0.05	0.14	3.80	3.99
<i>Block Group 3</i>	0.02	15.44	47.00	62.46	0.04	0.12	3.80	3.96
<i>Census Tract 121.05</i>								
<i>Block Group 1</i>	3.16	13.43	47.00	63.59	0.04	0.10	3.80	3.94
<i>Block Group 2</i>	2.22	14.90	47.00	64.12	0.04	0.10	3.80	3.94
<i>Census Tract 121.06</i>								
<i>Block Group 1</i>	0.01	16.19	47.00	63.19	0.04	0.12	3.80	3.96
<i>Block Group 2</i>	0.01	15.63	47.00	62.64	0.04	0.11	3.80	3.96
<i>Census Tract 122.01</i>								
<i>Block Group 1</i>	0.01	20.12	47.00	67.12	0.05	0.21	3.80	4.06
<i>Block Group 2</i>	0.004	27.74	47.00	74.74	0.05	0.22	3.80	4.07
<i>Block Group 3</i>	0.01	21.24	47.00	68.25	0.06	0.20	3.80	4.06
<i>Census Tract 122.02</i>								
<i>Block Group 1</i>	0.01	20.48	47.00	67.48	0.08	0.11	3.80	3.99
<i>Block Group 2</i>	0.31	19.35	47.00	66.66	0.15	0.09	3.80	4.05
<i>Block Group 3</i>	0.42	13.79	47.00	61.22	0.20	0.09	3.80	4.09
<i>Census Tract 122.03</i>								
<i>Block Group 1</i>	0.03	18.97	47.00	66.00	0.06	0.15	3.80	4.01
<i>Block Group 2</i>	0.02	17.28	47.00	64.30	0.08	0.11	3.80	3.99
<i>Block Group 3</i>	0.004	16.69	47.00	63.69	0.12	0.09	3.80	4.01
<i>Census Tract 123.01</i>								
<i>Block Group 1</i>	0.07	18.17	47.00	65.24	0.42	0.21	3.80	4.42
<i>Block Group 2</i>	0.07	17.60	47.00	64.67	0.42	0.19	3.80	4.41
<i>Block Group 3</i>	0.04	22.58	47.00	69.62	0.41	0.25	3.80	4.46
<i>Block Group 4</i>	0.18	16.20	47.00	63.38	0.34	0.17	3.80	4.30
<i>Census Tract 123.04</i>								
<i>Block Group 1</i>	0.74	17.26	47.00	65.00	0.04	0.06	3.80	3.90
<i>Block Group 2</i>	3.23	15.74	47.00	65.97	0.04	0.10	3.80	3.94
<i>Block Group 3</i>	0.41	19.19	47.00	66.61	0.06	0.08	3.80	3.94
<i>Block Group 4</i>	0.08	58.79	47.00	105.87	0.04	0.28	3.80	4.13
<i>Census Tract 123.05</i>								
<i>Block Group 1</i>	3.83	13.40	47.00	64.23	0.07	0.05	3.80	3.93
<i>Census Tract 124.02</i>								
<i>Block Group 1</i>	0.01	20.33	47.00	67.35	0.09	0.12	3.80	4.00
<i>Block Group 2</i>	0.002	21.09	47.00	68.09	0.07	0.12	3.80	3.99
<i>Block Group 3</i>	0.004	23.90	47.00	70.91	0.07	0.12	3.80	3.99
<i>Block Group 4</i>	0.02	25.38	47.00	72.40	0.07	0.13	3.80	4.00

Tract Block Group	Nitrogen Dioxide (NO ₂) - µg/m ³							
	1-hour: NAAQS = 188				Annual: NAAQS = 100			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 124.03</i>								
<i>Block Group 1</i>	0.01	27.11	47.00	74.12	0.05	0.24	3.80	4.08
<i>Block Group 2</i>	0.01	54.41	47.00	101.42	0.06	0.42	3.80	4.27
<i>Census Tract 124.04</i>								
<i>Block Group 1</i>	0.04	27.33	47.00	74.38	0.07	0.14	3.80	4.00
<i>Block Group 2</i>	0.003	102.88	47.00	149.89	0.04	0.90	3.80	4.74
<i>Block Group 3</i>	0.01	35.31	47.00	82.32	0.06	0.25	3.80	4.11
<i>Census Tract 125.06</i>								
<i>Block Group 1</i>	2.46	38.34	47.00	87.79	0.05	0.16	3.80	4.01
<i>Block Group 2</i>	2.52	34.30	47.00	83.82	0.05	0.16	3.80	4.01
<i>Block Group 3</i>	0.07	31.27	47.00	78.34	0.05	0.15	3.80	4.00
<i>Census Tract 125.08</i>								
<i>Block Group 1</i>	0.02	21.57	47.00	68.60	0.03	0.14	3.80	3.98
<i>Block Group 2</i>	1.15	25.57	47.00	73.72	0.04	0.14	3.80	3.98
<i>Census Tract 125.09</i>								
<i>Block Group 1</i>	0.01	22.19	47.00	69.20	0.04	0.12	3.80	3.97
<i>Block Group 2</i>	0.02	25.77	47.00	72.78	0.04	0.13	3.80	3.97
<i>Census Tract 125.1</i>								
<i>Block Group 1</i>	1.29	13.85	47.00	62.15	0.04	0.11	3.80	3.95
<i>Block Group 2</i>	0.77	19.15	47.00	66.93	0.04	0.12	3.80	3.96
<i>Block Group 3</i>	0.12	18.20	47.00	65.32	0.04	0.12	3.80	3.97
<i>Census Tract 125.11</i>								
<i>Block Group 1</i>	0.96	23.07	47.00	71.03	0.04	0.12	3.80	3.95
<i>Block Group 2</i>	2.17	27.03	47.00	76.20	0.04	0.17	3.80	4.01
<i>Block Group 3</i>	0.01	20.45	47.00	67.47	0.05	0.15	3.80	4.00
<i>Census Tract 125.12</i>								
<i>Block Group 2</i>	0.004	19.11	47.00	66.11	0.03	0.30	3.80	4.13
<i>Census Tract 125.13</i>								
<i>Block Group 1</i>	0.01	34.02	47.00	81.03	0.04	0.15	3.80	4.00
<i>Block Group 2</i>	0.04	25.44	47.00	72.48	0.04	0.18	3.80	4.02
<i>Census Tract 125.14</i>								
<i>Block Group 1</i>	0.02	22.88	47.00	69.90	0.04	0.15	3.80	3.99
<i>Census Tract 125.15</i>								
<i>Block Group 1</i>	0.02	24.59	47.00	71.61	0.04	0.14	3.80	3.98
<i>Census Tract 125.16</i>								
<i>Block Group 2</i>	0.01	19.72	47.00	66.73	0.04	0.16	3.80	4.00
<i>Block Group 3</i>	0.01	18.60	47.00	65.61	0.03	0.21	3.80	4.04
<i>Census Tract 125.17</i>								
<i>Block Group 1</i>	0.05	21.59	47.00	68.63	0.04	0.14	3.80	3.98
<i>Block Group 3</i>	0.02	23.71	47.00	70.73	0.04	0.13	3.80	3.97
<i>Census Tract 126.07</i>								
<i>Block Group 1</i>	3.79	15.51	47.00	66.30	0.05	0.16	3.80	4.02
<i>Block Group 2</i>	0.04	23.68	47.00	70.72	0.05	0.35	3.80	4.20
<i>Census Tract 126.08</i>								
<i>Block Group 1</i>	0.03	21.23	47.00	68.26	0.05	0.35	3.80	4.19
<i>Block Group 3</i>	0.04	25.41	47.00	72.45	0.04	0.31	3.80	4.16
<i>Block Group 4</i>	0.01	24.58	47.00	71.59	0.05	0.21	3.80	4.06
<i>Census Tract 126.13</i>								
<i>Block Group 2</i>	0.01	21.80	47.00	68.80	0.04	0.12	3.80	3.97
<i>Block Group 3</i>	0.05	25.57	47.00	72.62	0.04	0.14	3.80	3.99
<i>Block Group 4</i>	0.03	21.79	47.00	68.82	0.04	0.13	3.80	3.97
<i>Census Tract 126.14</i>								
<i>Block Group 1</i>	0.02	25.88	47.00	72.90	0.05	0.16	3.80	4.01

Tract Block Group	Nitrogen Dioxide (NO ₂) - µg/m ³							
	1-hour: NAAQS = 188				Annual: NAAQS = 100			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 126.15</i>								
<i>Block Group 2</i>	0.01	28.64	47.00	75.65	0.04	0.17	3.80	4.01
<i>Block Group 3</i>	0.03	25.52	47.00	72.55	0.05	0.18	3.80	4.03
<i>Census Tract 126.16</i>								
<i>Block Group 1</i>	0.01	28.33	47.00	75.34	0.04	0.15	3.80	3.99
<i>Block Group 2</i>	0.01	26.96	47.00	73.97	0.04	0.14	3.80	3.98
<i>Census Tract 126.17</i>								
<i>Block Group 1</i>	0.01	25.07	47.00	72.07	0.04	0.13	3.80	3.98
<i>Block Group 2</i>	0.01	27.04	47.00	74.05	0.04	0.13	3.80	3.97
<i>Census Tract 127</i>								
<i>Block Group 2</i>	0.03	60.71	47.00	107.74	0.96	0.12	3.80	4.88
<i>Block Group 3</i>	4.03	18.80	47.00	69.83	0.06	0.17	3.80	4.02
<i>Block Group 4</i>	2.83	14.68	47.00	64.50	0.05	0.15	3.80	4.00
<i>Census Tract 128</i>								
<i>Block Group 1</i>	0.002	17.34	47.00	64.35	0.03	0.21	3.80	4.05
<i>Block Group 2</i>	0.003	24.36	47.00	71.36	0.04	0.56	3.80	4.40
<i>Block Group 4</i>	1.11	16.52	47.00	64.64	0.04	0.16	3.80	4.00
<i>Census Tract 129</i>								
<i>Block Group 3</i>	0.002	18.27	47.00	65.27	0.04	0.11	3.80	3.95
<i>Block Group 4</i>	0.01	19.36	47.00	66.36	0.04	0.11	3.80	3.96
<i>Census Tract 130.02</i>								
<i>Block Group 1</i>	0.02	19.14	47.00	66.16	0.04	0.12	3.80	3.96
<i>Block Group 3</i>	0.87	17.30	47.00	65.17	0.04	0.11	3.80	3.95
<i>Census Tract 130.03</i>								
<i>Block Group 1</i>	0.86	16.17	47.00	64.03	0.04	0.11	3.80	3.95
<i>Block Group 2</i>	0.01	18.12	47.00	65.12	0.04	0.11	3.80	3.95
<i>Census Tract 130.04</i>								
<i>Block Group 3</i>	0.01	17.40	47.00	64.41	0.04	0.10	3.80	3.94
<i>Census Tract 131.02</i>								
<i>Block Group 1</i>	3.40	17.56	47.00	67.96	0.04	0.20	3.80	4.04
<i>Block Group 2</i>	3.63	17.47	47.00	68.10	0.04	0.32	3.80	4.16
<i>Census Tract 131.04</i>								
<i>Block Group 2</i>	0.04	19.00	47.00	66.04	0.04	0.14	3.80	3.98
<i>Block Group 3</i>	0.01	18.01	47.00	65.02	0.04	0.12	3.80	3.96
<i>Census Tract 131.06</i>								
<i>Block Group 2</i>	2.21	16.90	47.00	66.11	0.04	0.11	3.80	3.96
<i>Block Group 3</i>	2.75	17.58	47.00	67.33	0.04	0.15	3.80	3.99
<i>Census Tract 132.03</i>								
<i>Block Group 1</i>	1.72	19.07	47.00	67.78	0.05	0.18	3.80	4.03
<i>Block Group 2</i>	0.88	21.38	47.00	69.26	0.05	0.29	3.80	4.14
<i>Census Tract 132.04</i>								
<i>Block Group 1</i>	2.00	19.53	47.00	68.53	0.04	0.18	3.80	4.02
<i>Census Tract 132.05</i>								
<i>Block Group 2</i>	3.45	15.56	47.00	66.01	0.04	0.19	3.80	4.03
<i>Census Tract 132.06</i>								
<i>Block Group 2</i>	0.004	18.87	47.00	65.88	0.05	0.14	3.80	3.99
<i>Block Group 3</i>	0.46	18.62	47.00	66.07	0.05	0.15	3.80	3.99
<i>Census Tract 132.07</i>								
<i>Block Group 1</i>	2.21	15.02	47.00	64.23	0.05	0.14	3.80	3.99
<i>Census Tract 133.03</i>								
<i>Block Group 2</i>	2.89	16.15	47.00	66.04	0.04	0.19	3.80	4.04
<i>Census Tract 133.05</i>								
<i>Block Group 2</i>	0.003	15.89	47.00	62.89	0.04	0.12	3.80	3.96
<i>Block Group 4</i>	1.96	13.33	47.00	62.29	0.04	0.11	3.80	3.95

Tract Block Group	Nitrogen Dioxide (NO ₂) - µg/m ³							
	1-hour: NAAQS = 188				Annual: NAAQS = 100			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 133.06</i>								
<i>Block Group 2</i>	2.98	12.41	47.00	62.38	0.04	0.11	3.80	3.95
<i>Census Tract 133.07</i>								
<i>Block Group 2</i>	0.95	13.48	47.00	61.43	0.04	0.10	3.80	3.94
<i>Census Tract 133.08</i>								
<i>Block Group 2</i>	0.96	13.88	47.00	61.84	0.04	0.10	3.80	3.94
<i>Census Tract 133.09</i>								
<i>Block Group 2</i>	2.68	11.88	47.00	61.56	0.04	0.10	3.80	3.94
<i>Census Tract 134.01</i>								
<i>Block Group 1</i>	3.43	15.51	47.00	65.94	0.04	0.11	3.80	3.95
<i>Census Tract 134.02</i>								
<i>Block Group 1</i>	2.83	13.75	47.00	63.58	0.04	0.10	3.80	3.93
<i>Block Group 3</i>	1.97	15.94	47.00	64.92	0.04	0.12	3.80	3.96
<i>Census Tract 135</i>								
<i>Block Group 1</i>	3.14	14.16	47.00	64.30	0.04	0.10	3.80	3.94
<i>Block Group 2</i>	2.39	16.35	47.00	65.74	0.04	0.10	3.80	3.94
<i>Census Tract 136</i>								
<i>Block Group 1</i>	0.94	15.53	47.00	63.47	0.04	0.11	3.80	3.95
<i>Block Group 4</i>	0.71	16.35	47.00	64.06	0.04	0.12	3.80	3.95
<i>Census Tract 137</i>								
<i>Block Group 1</i>	4.17	13.99	47.00	65.16	0.04	0.16	3.80	3.99
<i>Census Tract 138.01</i>								
<i>Block Group 2</i>	0.89	16.07	47.00	63.97	0.04	0.09	3.80	3.93
<i>Census Tract 138.02</i>								
<i>Block Group 4</i>	2.61	12.49	47.00	62.10	0.04	0.09	3.80	3.93
<i>Census Tract 139.02</i>								
<i>Block Group 1</i>	2.60	13.55	47.00	63.14	0.04	0.10	3.80	3.94
<i>Block Group 3</i>	0.01	14.77	47.00	61.77	0.04	0.10	3.80	3.93
<i>Census Tract 139.03</i>								
<i>Block Group 1</i>	1.78	13.91	47.00	62.69	0.04	0.11	3.80	3.95
<i>Block Group 2</i>	3.28	11.85	47.00	62.13	0.04	0.10	3.80	3.94
<i>Census Tract 140.01</i>								
<i>Block Group 1</i>	1.74	13.66	47.00	62.40	0.04	0.11	3.80	3.95
<i>Block Group 3</i>	3.35	11.91	47.00	62.26	0.03	0.10	3.80	3.93
<i>Census Tract 140.02</i>								
<i>Block Group 1</i>	2.58	14.76	47.00	64.35	0.04	0.10	3.80	3.94
<i>Census Tract 141.01</i>								
<i>Block Group 2</i>	2.60	14.21	47.00	63.81	0.04	0.11	3.80	3.96
<i>Block Group 4</i>	3.27	12.42	47.00	62.69	0.04	0.12	3.80	3.96
<i>Census Tract 141.02</i>								
<i>Block Group 1</i>	2.81	13.38	47.00	63.18	0.05	0.11	3.80	3.96
<i>Block Group 2</i>	1.79	14.64	47.00	63.43	0.05	0.12	3.80	3.97
<i>Block Group 3</i>	3.14	12.30	47.00	62.44	0.05	0.12	3.80	3.97
<i>Census Tract 141.03</i>								
<i>Block Group 1</i>	1.91	14.23	47.00	63.14	0.04	0.11	3.80	3.96
<i>Block Group 2</i>	2.03	17.06	47.00	66.09	0.06	0.18	3.80	4.04
<i>Block Group 3</i>	0.73	13.61	47.00	61.34	0.04	0.10	3.80	3.94
<i>Census Tract 142.01</i>								
<i>Block Group 2</i>	0.01	22.35	47.00	69.37	0.25	0.28	3.80	4.33
<i>Census Tract 142.02</i>								
<i>Block Group 1</i>	0.01	72.37	47.00	119.38	0.05	0.21	3.80	4.07
<i>Block Group 2</i>	0.07	69.36	47.00	116.44	0.08	2.58	3.80	6.46

Tract Block Group	Nitrogen Dioxide (NO ₂) - µg/m ³							
	1-hour: NAAQS = 188				Annual: NAAQS = 100			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 143</i>								
<i>Block Group 1</i>	1.63	15.56	47.00	64.20	0.04	0.14	3.80	3.98
<i>Block Group 2</i>	0.93	16.46	47.00	64.39	0.04	0.13	3.80	3.97
<i>Block Group 3</i>	0.03	17.93	47.00	64.96	0.04	0.17	3.80	4.01
<i>Census Tract 144.01</i>								
<i>Block Group 1</i>	0.01	66.78	47.00	113.79	0.05	0.31	3.80	4.15
<i>Block Group 2</i>	0.01	37.30	47.00	84.30	0.05	0.17	3.80	4.02
<i>Block Group 3</i>	0.01	41.42	47.00	88.42	0.04	0.23	3.80	4.07
<i>Census Tract 144.02</i>								
<i>Block Group 1</i>	0.005	35.49	47.00	82.49	0.04	0.16	3.80	4.01
<i>Block Group 2</i>	0.004	39.56	47.00	86.57	0.05	0.24	3.80	4.09
<i>Block Group 3</i>	0.004	29.92	47.00	76.92	0.04	0.16	3.80	4.00
<i>Census Tract 144.03</i>								
<i>Block Group 1</i>	0.02	20.92	47.00	67.94	0.05	0.17	3.80	4.03
<i>Block Group 2</i>	0.01	22.87	47.00	69.88	0.05	0.17	3.80	4.03
<i>Census Tract 144.04</i>								
<i>Block Group 1</i>	0.004	25.58	47.00	72.58	0.05	0.20	3.80	4.05
<i>Block Group 2</i>	0.01	59.68	47.00	106.69	0.05	0.25	3.80	4.10
<i>Census Tract 145.01</i>								
<i>Block Group 2</i>	0.03	23.40	47.00	70.44	0.05	0.15	3.80	4.00
<i>Block Group 3</i>	1.82	19.02	47.00	67.85	0.04	0.17	3.80	4.01
<i>Census Tract 145.02</i>								
<i>Block Group 2</i>	0.02	22.25	47.00	69.27	0.04	0.18	3.80	4.02
<i>Block Group 3</i>	0.03	22.84	47.00	69.87	0.05	0.18	3.80	4.03
<i>Census Tract 9504</i>								
<i>Block Group 1</i>	0.005	8.78	47.00	55.78	0.07	0.10	3.80	3.96
<i>Census Tract 9505</i>								
<i>Block Group 2</i>	0.01	10.15	47.00	57.15	0.07	0.11	3.80	3.99
<i>Census Tract 9506</i>								
<i>Block Group 1</i>	0.03	12.48	47.00	59.51	0.06	0.15	3.80	4.01
<i>Census Tract 9507</i>								
<i>Block Group 1</i>	0.45	8.79	47.00	56.25	0.10	0.08	3.80	3.98
<i>Census Tract 9800.01</i>								
<i>Block Group 1</i>	1.51	29.04	47.00	77.56	0.06	0.39	3.80	4.24
<i>Census Tract 9801</i>								
<i>Block Group 1</i>	1.22	17.46	47.00	65.67	0.05	0.16	3.80	4.01
<i>Census Tract 9900</i>								
<i>Block Group 0</i>	2.63	14.43	47.00	64.07	0.05	0.04	3.80	3.89

Tract Block Group	Sulfur Dioxide (SO ₂) - µg/m ³							
	1-hour: NAAQS = 196				3-hour: NAAQS = 1,300			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 101.01</i>								
<i>Block Group 1</i>	0.001	3.06	13.10	16.16	0.0003	2.13	13.10	15.23
<i>Block Group 2</i>	0.0007	2.29	13.10	15.39	0.0051	1.67	13.10	14.78
<i>Block Group 3</i>	0.0008	2.25	13.10	15.35	0.0008	1.25	13.10	14.35
<i>Census Tract 101.02</i>								
<i>Block Group 1</i>	0.04	1.90	13.10	15.05	0.0042	1.36	13.10	14.46
<i>Block Group 2</i>	0.0002	2.86	13.10	15.96	0.0007	1.81	13.10	14.91
<i>Block Group 3</i>	0.0005	2.74	13.10	15.84	0.0007	1.89	13.10	14.99
<i>Census Tract 101.03</i>								
<i>Block Group 1</i>	0.0009	3.70	13.10	16.80	0.0001	2.31	13.10	15.41
<i>Block Group 2</i>	0.0005	3.53	13.10	16.63	0.0068	2.03	13.10	15.13
<i>Census Tract 102.01</i>								
<i>Block Group 1</i>	0.05	1.73	13.10	14.88	0.0660	0.94	13.10	14.10
<i>Block Group 2</i>	0.003	1.91	13.10	15.01	0.0005	1.35	13.10	14.45
<i>Census Tract 102.04</i>								
<i>Block Group 1</i>	0.0005	2.18	13.10	15.28	0.2766	0.83	13.10	14.21
<i>Block Group 2</i>	0.0004	2.07	13.10	15.17	0.0003	1.08	13.10	14.18
<i>Census Tract 102.05</i>								
<i>Block Group 1</i>	0.0008	2.29	13.10	15.39	0.0000	2.24	13.10	15.34
<i>Block Group 2</i>	0.0008	1.83	13.10	14.93	0.2529	0.81	13.10	14.16
<i>Block Group 3</i>	0.001	1.53	13.10	14.63	0.0302	0.99	13.10	14.12
<i>Block Group 4</i>	0.0010	1.64	13.10	14.74	0.0357	1.06	13.10	14.19
<i>Census Tract 103.01</i>								
<i>Block Group 3</i>	0.07	1.45	13.10	14.62	0.0009	1.14	13.10	14.24
<i>Census Tract 103.03</i>								
<i>Block Group 1</i>	0.001	1.66	13.10	14.76	0.0008	1.13	13.10	14.23
<i>Census Tract 103.04</i>								
<i>Block Group 1</i>	0.001	1.72	13.10	14.82	0.0028	0.96	13.10	14.06
<i>Block Group 2</i>	0.0009	1.70	13.10	14.80	0.0929	0.88	13.10	14.07
<i>Census Tract 104.03</i>								
<i>Block Group 1</i>	0.05	1.48	13.10	14.64	0.0388	0.99	13.10	14.13
<i>Block Group 2</i>	0.05	1.53	13.10	14.68	0.0008	1.20	13.10	14.30
<i>Census Tract 104.04</i>								
<i>Block Group 1</i>	0.0009	1.74	13.10	14.84	0.0008	1.12	13.10	14.22
<i>Block Group 2</i>	0.001	1.78	13.10	14.88	0.1458	1.15	13.10	14.40
<i>Census Tract 104.05</i>								
<i>Block Group 1</i>	0.001	1.78	13.10	14.89	0.0821	0.95	13.10	14.14
<i>Block Group 2</i>	0.0009	1.97	13.10	15.07	0.0276	1.11	13.10	14.24
<i>Block Group 3</i>	0.003	1.80	13.10	14.91	0.0008	1.11	13.10	14.21
<i>Census Tract 104.06</i>								
<i>Block Group 1</i>	0.001	1.97	13.10	15.07	0.0860	1.27	13.10	14.46
<i>Block Group 2</i>	0.0009	1.82	13.10	14.92	0.1204	1.19	13.10	14.41
<i>Census Tract 105</i>								
<i>Block Group 1</i>	0.001	1.98	13.10	15.08	0.0008	1.24	13.10	14.34
<i>Block Group 2</i>	0.0009	2.10	13.10	15.20	0.0008	1.39	13.10	14.50
<i>Census Tract 106.02</i>								
<i>Block Group 1</i>	0.002	2.08	13.10	15.18	0.0006	1.10	13.10	14.21
<i>Census Tract 106.03</i>								
<i>Block Group 1</i>	0.0009	1.91	13.10	15.01	0.0023	1.19	13.10	14.29
<i>Block Group 2</i>	0.0009	1.96	13.10	15.06	0.0024	1.21	13.10	14.32
<i>Block Group 3</i>	0.001	2.02	13.10	15.12	0.0606	1.08	13.10	14.24
<i>Census Tract 106.04</i>								
<i>Block Group 1</i>	0.001	1.86	13.10	14.96	0.0422	1.05	13.10	14.19
<i>Block Group 2</i>	0.0003	1.87	13.10	14.97	0.2937	0.80	13.10	14.19

Tract Block Group	Sulfur Dioxide (SO ₂) - µg/m ³							
	1-hour: NAAQS = 196				3-hour: NAAQS = 1,300			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 107</i>								
<i>Block Group 2</i>	0.001	1.96	13.10	15.06	0.0690	1.02	13.10	14.19
<i>Census Tract 108.01</i>								
<i>Block Group 1</i>	0.0007	2.31	13.10	15.41	0.0008	1.18	13.10	14.28
<i>Block Group 2</i>	0.0009	2.31	13.10	15.41	0.0023	1.33	13.10	14.44
<i>Block Group 3</i>	0.001	2.32	13.10	15.42	0.0023	1.40	13.10	14.51
<i>Census Tract 108.02</i>								
<i>Block Group 3</i>	0.0005	2.97	13.10	16.07	0.0181	1.96	13.10	15.08
<i>Census Tract 110</i>								
<i>Block Group 3</i>	0.002	2.21	13.10	15.32	0.0522	1.36	13.10	14.51
<i>Census Tract 111</i>								
<i>Block Group 1</i>	0.0009	2.30	13.10	15.40	0.0009	1.56	13.10	14.66
<i>Block Group 3</i>	0.0007	2.38	13.10	15.48	0.0286	1.35	13.10	14.48
<i>Census Tract 112</i>								
<i>Block Group 1</i>	0.001	2.38	13.10	15.49	0.0008	1.28	13.10	14.38
<i>Census Tract 113.01</i>								
<i>Block Group 2</i>	0.0009	2.48	13.10	15.58	0.0008	1.29	13.10	14.39
<i>Census Tract 113.02</i>								
<i>Block Group 1</i>	0.0008	2.47	13.10	15.57	0.0008	1.49	13.10	14.59
<i>Block Group 2</i>	0.0009	2.66	13.10	15.76	0.0008	1.38	13.10	14.48
<i>Census Tract 114.01</i>								
<i>Block Group 1</i>	0.0005	4.00	13.10	17.10	0.0006	2.45	13.10	15.55
<i>Block Group 2</i>	0.0002	5.88	13.10	18.98	0.0006	3.18	13.10	16.29
<i>Block Group 3</i>	0.0002	4.33	13.10	17.43	0.0008	2.90	13.10	16.00
<i>Census Tract 114.02</i>								
<i>Block Group 1</i>	0.0006	3.42	13.10	16.52	0.0007	1.78	13.10	14.88
<i>Block Group 2</i>	0.0004	3.67	13.10	16.77	0.0008	2.54	13.10	15.64
<i>Block Group 3</i>	0.0009	3.64	13.10	16.74	0.0007	2.06	13.10	15.16
<i>Census Tract 115</i>								
<i>Block Group 1</i>	0.0007	3.69	13.10	16.79	0.0006	2.46	13.10	15.56
<i>Block Group 3</i>	0.0006	3.92	13.10	17.02	0.0005	2.67	13.10	15.77
<i>Block Group 4</i>	0.0008	3.93	13.10	17.03	0.0079	2.09	13.10	15.20
<i>Block Group 5</i>	0.0004	4.87	13.10	17.97	0.0004	3.14	13.10	16.24
<i>Census Tract 116.01</i>								
<i>Block Group 1</i>	0.0003	4.43	13.10	17.53	0.0008	2.24	13.10	15.34
<i>Block Group 2</i>	0.0006	4.17	13.10	17.27	0.1694	1.79	13.10	15.06
<i>Census Tract 116.02</i>								
<i>Block Group 2</i>	0.0004	3.75	13.10	16.85	0.1217	1.88	13.10	15.10
<i>Census Tract 117.01</i>								
<i>Block Group 1</i>	0.0007	3.21	13.10	16.31	0.0006	2.10	13.10	15.20
<i>Block Group 2</i>	0.0006	3.51	13.10	16.61	0.0006	2.06	13.10	15.16
<i>Census Tract 117.02</i>								
<i>Block Group 2</i>	0.0007	3.71	13.10	16.81	0.0008	2.34	13.10	15.44
<i>Census Tract 118.01</i>								
<i>Block Group 1</i>	0.0006	2.60	13.10	15.70	0.0007	1.75	13.10	14.85
<i>Block Group 2</i>	0.0008	2.46	13.10	15.56	0.0007	1.60	13.10	14.71
<i>Block Group 3</i>	0.0006	2.80	13.10	15.90	0.0007	1.83	13.10	14.94
<i>Block Group 4</i>	0.0009	2.42	13.10	15.52	0.0008	1.53	13.10	14.63
<i>Census Tract 118.02</i>								
<i>Block Group 1</i>	0.0006	2.39	13.10	15.49	0.0010	1.21	13.10	14.31
<i>Block Group 2</i>	0.0006	2.43	13.10	15.53	0.0527	1.21	13.10	14.37
<i>Block Group 3</i>	0.0009	2.54	13.10	15.65	0.0685	1.25	13.10	14.42

Tract Block Group	Sulfur Dioxide (SO ₂) - µg/m ³							
	1-hour: NAAQS = 196				3-hour: NAAQS = 1,300			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 120.02</i>								
<i>Block Group 1</i>	0.0007	2.22	13.10	15.32	0.0007	1.64	13.10	14.74
<i>Block Group 3</i>	0.0007	2.02	13.10	15.12	0.0008	1.56	13.10	14.66
<i>Block Group 4</i>	0.0010	2.53	13.10	15.63	0.0007	1.99	13.10	15.09
<i>Census Tract 120.03</i>								
<i>Block Group 1</i>	0.0007	1.99	13.10	15.09	0.0021	1.01	13.10	14.11
<i>Block Group 2</i>	0.0009	2.08	13.10	15.18	0.0026	1.09	13.10	14.19
<i>Block Group 3</i>	0.0009	2.25	13.10	15.35	0.0358	1.18	13.10	14.31
<i>Census Tract 120.04</i>								
<i>Block Group 1</i>	0.05	1.87	13.10	15.02	0.0026	1.09	13.10	14.19
<i>Block Group 2</i>	0.0007	1.79	13.10	14.89	0.0206	1.01	13.10	14.13
<i>Census Tract 121.03</i>								
<i>Block Group 1</i>	0.0008	3.08	13.10	16.18	0.0425	1.54	13.10	14.68
<i>Census Tract 121.04</i>								
<i>Block Group 1</i>	0.0006	3.09	13.10	16.19	0.0006	2.15	13.10	15.25
<i>Block Group 2</i>	0.0003	5.04	13.10	18.14	0.0005	3.82	13.10	16.92
<i>Block Group 3</i>	0.0006	3.63	13.10	16.74	0.0005	2.57	13.10	15.67
<i>Census Tract 121.05</i>								
<i>Block Group 1</i>	0.05	3.59	13.10	16.74	0.0025	2.37	13.10	15.47
<i>Block Group 2</i>	0.001	4.38	13.10	17.48	0.2045	2.45	13.10	15.75
<i>Census Tract 121.06</i>								
<i>Block Group 1</i>	0.0005	4.65	13.10	17.75	0.0009	2.38	13.10	15.48
<i>Block Group 2</i>	0.001	4.89	13.10	17.99	0.0004	2.78	13.10	15.88
<i>Census Tract 122.01</i>								
<i>Block Group 1</i>	0.0003	6.83	13.10	19.93	0.0002	4.10	13.10	17.20
<i>Block Group 2</i>	0.0002	12.53	13.10	25.63	0.0001	8.06	13.10	21.16
<i>Block Group 3</i>	0.0005	8.79	13.10	21.89	0.0004	4.78	13.10	17.88
<i>Census Tract 122.02</i>								
<i>Block Group 1</i>	0.0004	12.80	13.10	25.90	0.0005	7.75	13.10	20.85
<i>Block Group 2</i>	0.0002	11.70	13.10	24.80	0.004	6.73	13.10	19.84
<i>Block Group 3</i>	0.002	6.20	13.10	19.30	0.0004	4.26	13.10	17.36
<i>Census Tract 122.03</i>								
<i>Block Group 1</i>	0.0002	9.23	13.10	22.33	0.003	7.18	13.10	20.28
<i>Block Group 2</i>	0.0002	8.27	13.10	21.37	0.0002	5.53	13.10	18.63
<i>Block Group 3</i>	0.0003	7.10	13.10	20.20	0.0001	4.47	13.10	17.57
<i>Census Tract 123.01</i>								
<i>Block Group 1</i>	0.17	2.70	13.10	15.97	0.00001	2.11	13.10	15.21
<i>Block Group 2</i>	0.0001	3.87	13.10	16.97	0.00002	2.68	13.10	15.78
<i>Block Group 3</i>	0.002	3.13	13.10	16.23	0.82	1.60	13.10	15.52
<i>Block Group 4</i>	0.0001	6.86	13.10	19.96	0.00001	5.10	13.10	18.20
<i>Census Tract 123.04</i>								
<i>Block Group 1</i>	0.60	2.89	13.10	16.58	0.92	1.79	13.10	15.81
<i>Block Group 2</i>	0.65	4.25	13.10	18.00	0.59	4.68	13.10	18.37
<i>Block Group 3</i>	0.18	2.71	13.10	15.99	0.58	2.10	13.10	15.78
<i>Block Group 4</i>	0.0012	6.85	13.10	19.95	0.003	7.01	13.10	20.12
<i>Census Tract 123.05</i>								
<i>Block Group 1</i>	0.001	7.25	13.10	20.35	0.001	6.88	13.10	19.98
<i>Census Tract 124.02</i>								
<i>Block Group 1</i>	0.0001	14.27	13.10	27.37	0.001	7.69	13.10	20.80
<i>Block Group 2</i>	0.0003	16.90	13.10	30.00	0.0004	11.64	13.10	24.74
<i>Block Group 3</i>	0.0002	18.33	13.10	31.43	0.001	9.48	13.10	22.58
<i>Block Group 4</i>	0.0003	15.68	13.10	28.78	0.0004	8.46	13.10	21.56

Tract Block Group	Sulfur Dioxide (SO ₂) - µg/m ³							
	1-hour: NAAQS = 196				3-hour: NAAQS = 1,300			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 124.03</i>								
<i>Block Group 1</i>	0.0004	14.53	13.10	27.63	0.0001	9.55	13.10	22.65
<i>Block Group 2</i>	0.001	37.48	13.10	50.58	0.0002	25.56	13.10	38.66
<i>Census Tract 124.04</i>								
<i>Block Group 1</i>	0.0003	17.38	13.10	30.48	0.0007	8.46	13.10	21.56
<i>Block Group 2</i>	0.001	102.63	13.10	115.73	0.001	87.98	13.10	101.09
<i>Block Group 3</i>	0.0003	30.61	13.10	43.71	0.0001	20.22	13.10	33.33
<i>Census Tract 125.06</i>								
<i>Block Group 1</i>	0.02	22.46	13.10	35.58	0.08	13.87	13.10	27.05
<i>Block Group 2</i>	0.0003	14.18	13.10	27.28	0.001	7.53	13.10	20.63
<i>Block Group 3</i>	0.0002	16.05	13.10	29.15	0.0003	11.07	13.10	24.17
<i>Census Tract 125.08</i>								
<i>Block Group 1</i>	0.0003	10.75	13.10	23.85	0.0003	6.87	13.10	19.97
<i>Block Group 2</i>	0.11	11.10	13.10	24.31	0.04	6.23	13.10	19.37
<i>Census Tract 125.09</i>								
<i>Block Group 1</i>	0.0001	13.30	13.10	26.40	0.0002	7.10	13.10	20.20
<i>Block Group 2</i>	0.0004	16.49	13.10	29.59	0.0005	9.62	13.10	22.72
<i>Census Tract 125.1</i>								
<i>Block Group 1</i>	0.0009	4.90	13.10	18.00	0.0005	2.69	13.10	15.79
<i>Block Group 2</i>	0.0003	6.00	13.10	19.10	0.0005	3.98	13.10	17.08
<i>Block Group 3</i>	0.0005	5.63	13.10	18.73	0.001	2.94	13.10	16.04
<i>Census Tract 125.11</i>								
<i>Block Group 1</i>	0.04	7.49	13.10	20.63	0.0008	4.32	13.10	17.42
<i>Block Group 2</i>	0.0003	8.96	13.10	22.06	0.0003	6.71	13.10	19.81
<i>Block Group 3</i>	0.0006	5.75	13.10	18.85	0.0005	3.45	13.10	16.55
<i>Census Tract 125.12</i>								
<i>Block Group 2</i>	0.0004	8.22	13.10	21.32	0.010	4.20	13.10	17.31
<i>Census Tract 125.13</i>								
<i>Block Group 1</i>	0.002	23.26	13.10	36.36	0.0006	12.79	13.10	25.89
<i>Block Group 2</i>	0.0004	13.85	13.10	26.95	0.0005	8.57	13.10	21.67
<i>Census Tract 125.14</i>								
<i>Block Group 1</i>	0.003	10.05	13.10	23.16	0.001	5.23	13.10	18.33
<i>Census Tract 125.15</i>								
<i>Block Group 1</i>	0.0005	13.46	13.10	26.56	0.0005	7.78	13.10	20.89
<i>Census Tract 125.16</i>								
<i>Block Group 2</i>	0.0005	9.37	13.10	22.47	0.0007	4.50	13.10	17.60
<i>Block Group 3</i>	0.0004	9.12	13.10	22.22	0.001	4.15	13.10	17.25
<i>Census Tract 125.17</i>								
<i>Block Group 1</i>	0.0002	12.38	13.10	25.48	0.0002	5.71	13.10	18.81
<i>Block Group 3</i>	0.0003	13.05	13.10	26.15	0.003	6.32	13.10	19.42
<i>Census Tract 126.07</i>								
<i>Block Group 1</i>	0.0001	7.17	13.10	20.27	0.0006	4.41	13.10	17.51
<i>Block Group 2</i>	0.0001	9.77	13.10	22.87	0.0002	5.51	13.10	18.61
<i>Census Tract 126.08</i>								
<i>Block Group 1</i>	0.0003	9.39	13.10	22.49	0.0001	6.18	13.10	19.28
<i>Block Group 3</i>	0.0002	11.78	13.10	24.88	0.0001	8.13	13.10	21.23
<i>Block Group 4</i>	0.0001	12.80	13.10	25.90	0.0001	8.53	13.10	21.63
<i>Census Tract 126.13</i>								
<i>Block Group 2</i>	0.0002	11.82	13.10	24.92	0.002	6.21	13.10	19.32
<i>Block Group 3</i>	0.0004	16.88	13.10	29.98	0.0001	10.52	13.10	23.62
<i>Block Group 4</i>	0.0003	12.81	13.10	25.91	0.0002	7.38	13.10	20.48
<i>Census Tract 126.14</i>								
<i>Block Group 1</i>	0.0002	15.95	13.10	29.05	0.0005	10.22	13.10	23.32

Tract Block Group	Sulfur Dioxide (SO ₂) - µg/m ³							
	1-hour: NAAQS = 196				3-hour: NAAQS = 1,300			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 126.15</i>								
<i>Block Group 2</i>	0.0003	20.92	13.10	34.02	0.0004	13.43	13.10	26.53
<i>Block Group 3</i>	0.0003	15.06	13.10	28.16	0.0003	11.25	13.10	24.35
<i>Census Tract 126.16</i>								
<i>Block Group 1</i>	0.0003	20.83	13.10	33.93	0.002	13.46	13.10	26.56
<i>Block Group 2</i>	0.0002	20.87	13.10	33.97	0.0007	12.72	13.10	25.82
<i>Census Tract 126.17</i>								
<i>Block Group 1</i>	0.0003	15.39	13.10	28.49	0.0002	9.26	13.10	22.36
<i>Block Group 2</i>	0.0003	17.96	13.10	31.06	0.0002	8.77	13.10	21.87
<i>Census Tract 127</i>								
<i>Block Group 2</i>	0.0038	6.14	13.10	19.25	0.004	6.23	13.10	19.34
<i>Block Group 3</i>	0.0002	7.52	13.10	20.62	0.0004	4.00	13.10	17.10
<i>Block Group 4</i>	0.0004	5.83	13.10	18.93	0.0007	3.56	13.10	16.66
<i>Census Tract 128</i>								
<i>Block Group 1</i>	0.0003	8.85	13.10	21.95	0.0001	5.16	13.10	18.26
<i>Block Group 2</i>	0.0001	8.54	13.10	21.64	0.0001	8.13	13.10	21.23
<i>Block Group 4</i>	0.0003	9.56	13.10	22.66	0.004	4.84	13.10	17.94
<i>Census Tract 129</i>								
<i>Block Group 3</i>	0.0003	7.32	13.10	20.42	0.0003	4.21	13.10	17.31
<i>Block Group 4</i>	0.0002	9.19	13.10	22.29	0.0002	5.14	13.10	18.24
<i>Census Tract 130.02</i>								
<i>Block Group 1</i>	0.0003	10.80	13.10	23.90	0.0007	5.17	13.10	18.28
<i>Block Group 3</i>	0.0003	9.14	13.10	22.24	0.0004	4.13	13.10	17.23
<i>Census Tract 130.03</i>								
<i>Block Group 1</i>	0.0005	9.20	13.10	22.30	0.002	4.54	13.10	17.64
<i>Block Group 2</i>	0.0004	10.56	13.10	23.66	0.003	4.61	13.10	17.72
<i>Census Tract 130.04</i>								
<i>Block Group 3</i>	0.0003	8.05	13.10	21.15	0.0001	3.74	13.10	16.84
<i>Census Tract 131.02</i>								
<i>Block Group 1</i>	0.0003	8.16	13.10	21.26	0.0004	5.36	13.10	18.46
<i>Block Group 2</i>	0.0001	8.25	13.10	21.35	0.0003	5.59	13.10	18.69
<i>Census Tract 131.04</i>								
<i>Block Group 2</i>	0.0003	8.80	13.10	21.90	0.0002	5.59	13.10	18.69
<i>Block Group 3</i>	0.0014	7.89	13.10	20.99	0.0003	5.19	13.10	18.29
<i>Census Tract 131.06</i>								
<i>Block Group 2</i>	0.0005	6.84	13.10	19.94	0.0002	4.75	13.10	17.85
<i>Block Group 3</i>	0.0004	7.17	13.10	20.27	0.0004	4.50	13.10	17.60
<i>Census Tract 132.03</i>								
<i>Block Group 1</i>	0.0001	7.45	13.10	20.55	0.0008	4.22	13.10	17.32
<i>Block Group 2</i>	0.0004	7.09	13.10	20.19	0.0007	4.56	13.10	17.66
<i>Census Tract 132.04</i>								
<i>Block Group 1</i>	0.0002	6.74	13.10	19.85	0.0005	3.52	13.10	16.63
<i>Census Tract 132.05</i>								
<i>Block Group 2</i>	0.0003	6.71	13.10	19.81	0.0005	4.09	13.10	17.19
<i>Census Tract 132.06</i>								
<i>Block Group 2</i>	0.0003	6.06	13.10	19.16	0.0007	3.44	13.10	16.54
<i>Block Group 3</i>	0.0004	6.67	13.10	19.78	0.0006	3.63	13.10	16.73
<i>Census Tract 132.07</i>								
<i>Block Group 1</i>	0.0003	6.31	13.10	19.41	0.0003	3.33	13.10	16.43
<i>Census Tract 133.03</i>								
<i>Block Group 2</i>	0.0004	7.02	13.10	20.12	0.0002	5.41	13.10	18.51
<i>Census Tract 133.05</i>								
<i>Block Group 2</i>	0.0004	5.09	13.10	18.19	0.0005	3.11	13.10	16.21
<i>Block Group 4</i>	0.0005	5.04	13.10	18.14	0.0002	3.85	13.10	16.95

Tract Block Group	Sulfur Dioxide (SO ₂) - µg/m ³							
	1-hour: NAAQS = 196				3-hour: NAAQS = 1,300			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 133.06</i>								
<i>Block Group 2</i>	0.002	4.88	13.10	17.98	0.0004	3.18	13.10	16.28
<i>Census Tract 133.07</i>								
<i>Block Group 2</i>	0.001	4.86	13.10	17.96	0.0003	3.49	13.10	16.59
<i>Census Tract 133.08</i>								
<i>Block Group 2</i>	0.001	4.57	13.10	17.68	0.0002	3.49	13.10	16.59
<i>Census Tract 133.09</i>								
<i>Block Group 2</i>	0.0002	4.21	13.10	17.31	0.0002	2.80	13.10	15.90
<i>Census Tract 134.01</i>								
<i>Block Group 1</i>	0.0005	6.18	13.10	19.28	0.0002	4.39	13.10	17.49
<i>Census Tract 134.02</i>								
<i>Block Group 1</i>	0.0005	5.59	13.10	18.69	0.0003	3.86	13.10	16.96
<i>Block Group 3</i>	0.0003	6.43	13.10	19.53	0.0007	3.31	13.10	16.41
<i>Census Tract 135</i>								
<i>Block Group 1</i>	0.002	8.04	13.10	21.14	0.0006	4.70	13.10	17.80
<i>Block Group 2</i>	0.0004	7.04	13.10	20.14	0.0001	3.38	13.10	16.48
<i>Census Tract 136</i>								
<i>Block Group 1</i>	0.0005	7.09	13.10	20.19	0.0008	4.10	13.10	17.21
<i>Block Group 4</i>	0.0004	6.87	13.10	19.97	0.0006	4.57	13.10	17.67
<i>Census Tract 137</i>								
<i>Block Group 1</i>	0.0002	6.81	13.10	19.91	0.00003	5.85	13.10	18.95
<i>Census Tract 138.01</i>								
<i>Block Group 2</i>	0.0004	6.21	13.10	19.31	0.0003	3.12	13.10	16.22
<i>Census Tract 138.02</i>								
<i>Block Group 4</i>	0.002	5.24	13.10	18.34	0.0078	3.55	13.10	16.66
<i>Census Tract 139.02</i>								
<i>Block Group 1</i>	0.0003	5.84	13.10	18.94	0.0005	3.23	13.10	16.33
<i>Block Group 3</i>	0.0003	5.31	13.10	18.41	0.0005	3.30	13.10	16.40
<i>Census Tract 139.03</i>								
<i>Block Group 1</i>	0.002	6.25	13.10	19.35	0.009	3.06	13.10	16.17
<i>Block Group 2</i>	0.002	5.75	13.10	18.85	0.0003	2.53	13.10	15.63
<i>Census Tract 140.01</i>								
<i>Block Group 1</i>	0.0012	6.10	13.10	19.20	0.0001	3.83	13.10	16.93
<i>Block Group 3</i>	0.001	5.59	13.10	18.69	0.003	3.27	13.10	16.37
<i>Census Tract 140.02</i>								
<i>Block Group 1</i>	0.0003	6.71	13.10	19.81	0.008	4.26	13.10	17.37
<i>Census Tract 141.01</i>								
<i>Block Group 2</i>	0.0003	4.22	13.10	17.32	0.14	2.45	13.10	15.68
<i>Block Group 4</i>	0.0004	4.50	13.10	17.60	0.0004	2.99	13.10	16.09
<i>Census Tract 141.02</i>								
<i>Block Group 1</i>	0.0002	5.10	13.10	18.20	0.0009	2.41	13.10	15.51
<i>Block Group 2</i>	0.001	4.50	13.10	17.61	0.004	2.78	13.10	15.88
<i>Block Group 3</i>	0.0003	4.33	13.10	17.43	0.0003	2.54	13.10	15.64
<i>Census Tract 141.03</i>								
<i>Block Group 1</i>	0.003	3.86	13.10	16.97	0.002	2.77	13.10	15.87
<i>Block Group 2</i>	0.0002	4.25	13.10	17.35	0.16	2.49	13.10	15.75
<i>Block Group 3</i>	0.0003	4.15	13.10	17.25	0.0002	2.83	13.10	15.93
<i>Census Tract 142.01</i>								
<i>Block Group 2</i>	0.09	2.47	13.10	15.67	0.16	2.00	13.10	15.26
<i>Census Tract 142.02</i>								
<i>Block Group 1</i>	0.001	68.66	13.10	81.76	0.0011	52.57	13.10	65.68
<i>Block Group 2</i>	0.002	14.78	13.10	27.88	0.002	20.19	13.10	33.29

Tract Block Group	Sulfur Dioxide (SO ₂) - µg/m ³							
	1-hour: NAAQS = 196				3-hour: NAAQS = 1,300			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 143</i>								
<i>Block Group 1</i>	0.0002	6.46	13.10	19.56	0.0002	4.74	13.10	17.84
<i>Block Group 2</i>	0.0003	6.65	13.10	19.75	0.009	3.70	13.10	16.80
<i>Block Group 3</i>	0.0004	6.10	13.10	19.20	0.0004	4.08	13.10	17.18
<i>Census Tract 144.01</i>								
<i>Block Group 1</i>	0.0009	90.88	13.10	103.98	0.0008	74.92	13.10	88.02
<i>Block Group 2</i>	0.0005	27.12	13.10	40.22	0.003	16.88	13.10	29.98
<i>Block Group 3</i>	0.0004	48.71	13.10	61.81	0.0006	36.36	13.10	49.46
<i>Census Tract 144.02</i>								
<i>Block Group 1</i>	0.0002	30.47	13.10	43.57	0.0011	16.86	13.10	29.96
<i>Block Group 2</i>	0.0006	49.38	13.10	62.48	0.0003	42.49	13.10	55.59
<i>Block Group 3</i>	0.0003	27.42	13.10	40.52	0.002	14.94	13.10	28.04
<i>Census Tract 144.03</i>								
<i>Block Group 1</i>	0.0005	9.24	13.10	22.34	0.0001	5.67	13.10	18.77
<i>Block Group 2</i>	0.0002	12.36	13.10	25.46	0.0003	7.52	13.10	20.62
<i>Census Tract 144.04</i>								
<i>Block Group 1</i>	0.0003	14.37	13.10	27.47	0.0003	9.85	13.10	22.95
<i>Block Group 2</i>	0.0008	79.52	13.10	92.62	0.001	62.15	13.10	75.25
<i>Census Tract 145.01</i>								
<i>Block Group 2</i>	0.0002	12.51	13.10	25.61	0.0005	8.06	13.10	21.17
<i>Block Group 3</i>	0.0001	9.58	13.10	22.68	0.0003	4.52	13.10	17.62
<i>Census Tract 145.02</i>								
<i>Block Group 2</i>	0.0002	11.19	13.10	24.29	0.0003	6.37	13.10	19.47
<i>Block Group 3</i>	0.0002	13.63	13.10	26.73	0.0003	8.68	13.10	21.78
<i>Census Tract 9504</i>								
<i>Block Group 1</i>	0.24	0.89	13.10	14.23	0.0005	0.81	13.10	13.91
<i>Census Tract 9505</i>								
<i>Block Group 2</i>	0.29	0.96	13.10	14.35	0.22	0.65	13.10	13.97
<i>Census Tract 9506</i>								
<i>Block Group 1</i>	0.07	1.48	13.10	14.64	0.19	1.00	13.10	14.29
<i>Census Tract 9507</i>								
<i>Block Group 1</i>	0.07	1.61	13.10	14.78	0.0004	1.16	13.10	14.26
<i>Census Tract 9800.01</i>								
<i>Block Group 1</i>	0.004	2.15	13.10	15.26	0.005	1.15	13.10	14.25
<i>Census Tract 9801</i>								
<i>Block Group 1</i>	0.0003	5.79	13.10	18.89	0.002	3.53	13.10	16.64
<i>Census Tract 9900</i>								
<i>Block Group 0</i>	0.25	2.13	13.10	15.48	0.32	2.07	13.10	15.49

Tract Block Group	Particulate Matter (PM _{2.5}) - µg/m ³							
	24-hour: NAAQS = 35				Annual: NAAQS = 12			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 101.01</i>								
<i>Block Group 1</i>	0.001	6.33	28.00	34.33	0.008	1.02	9.70	10.73
<i>Block Group 2</i>	0.007	0.58	28.00	28.58	0.01	0.06	9.70	9.78
<i>Block Group 3</i>	0.007	0.68	28.00	28.69	0.010	0.08	9.70	9.79
<i>Census Tract 101.02</i>								
<i>Block Group 1</i>	0.005	0.24	28.00	28.25	0.02	0.03	9.70	9.74
<i>Block Group 2</i>	0.006	0.23	28.00	28.24	0.02	0.02	9.70	9.75
<i>Block Group 3</i>	0.012	0.34	28.00	28.35	0.01	0.04	9.70	9.75
<i>Census Tract 101.03</i>								
<i>Block Group 1</i>	0.008	0.48	28.00	28.49	0.01	0.05	9.70	9.76
<i>Block Group 2</i>	0.007	0.73	28.00	28.73	0.009	0.07	9.70	9.78
<i>Census Tract 102.01</i>								
<i>Block Group 1</i>	0.022	1.15	28.00	29.17	0.008	0.24	9.70	9.95
<i>Block Group 2</i>	0.004	1.48	28.00	29.48	0.009	0.36	9.70	10.07
<i>Census Tract 102.04</i>								
<i>Block Group 1</i>	0.020	1.20	28.00	29.22	0.007	0.17	9.70	9.88
<i>Block Group 2</i>	0.021	1.20	28.00	29.22	0.007	0.19	9.70	9.89
<i>Census Tract 102.05</i>								
<i>Block Group 1</i>	0.011	3.03	28.00	31.04	0.008	0.90	9.70	10.61
<i>Block Group 2</i>	0.037	0.79	28.00	28.83	0.007	0.13	9.70	9.83
<i>Block Group 3</i>	0.022	0.59	28.00	28.61	0.006	0.09	9.70	9.79
<i>Block Group 4</i>	0.034	0.64	28.00	28.67	0.006	0.09	9.70	9.80
<i>Census Tract 103.01</i>								
<i>Block Group 3</i>	0.040	0.54	28.00	28.58	0.006	0.08	9.70	9.79
<i>Census Tract 103.03</i>								
<i>Block Group 1</i>	0.017	0.41	28.00	28.43	0.005	0.06	9.70	9.76
<i>Census Tract 103.04</i>								
<i>Block Group 1</i>	0.006	0.40	28.00	28.41	0.005	0.05	9.70	9.76
<i>Block Group 2</i>	0.012	0.41	28.00	28.42	0.005	0.05	9.70	9.76
<i>Census Tract 104.03</i>								
<i>Block Group 1</i>	0.022	0.59	28.00	28.62	0.006	0.09	9.70	9.79
<i>Block Group 2</i>	0.013	0.45	28.00	28.46	0.006	0.07	9.70	9.77
<i>Census Tract 104.04</i>								
<i>Block Group 1</i>	0.016	0.44	28.00	28.46	0.005	0.06	9.70	9.77
<i>Block Group 2</i>	0.018	0.54	28.00	28.56	0.006	0.08	9.70	9.78
<i>Census Tract 104.05</i>								
<i>Block Group 1</i>	0.010	0.44	28.00	28.45	0.005	0.06	9.70	9.76
<i>Block Group 2</i>	0.015	0.51	28.00	28.52	0.005	0.06	9.70	9.77
<i>Block Group 3</i>	0.013	0.47	28.00	28.48	0.005	0.06	9.70	9.77
<i>Census Tract 104.06</i>								
<i>Block Group 1</i>	0.015	0.55	28.00	28.57	0.006	0.07	9.70	9.78
<i>Block Group 2</i>	0.008	0.50	28.00	28.51	0.006	0.07	9.70	9.78
<i>Census Tract 105</i>								
<i>Block Group 1</i>	0.019	0.61	28.00	28.63	0.006	0.09	9.70	9.80
<i>Block Group 2</i>	0.017	0.67	28.00	28.69	0.006	0.09	9.70	9.79
<i>Census Tract 106.02</i>								
<i>Block Group 1</i>	0.012	0.88	28.00	28.90	0.006	0.12	9.70	9.83
<i>Census Tract 106.03</i>								
<i>Block Group 1</i>	0.020	0.67	28.00	28.69	0.006	0.10	9.70	9.81
<i>Block Group 2</i>	0.016	0.81	28.00	28.83	0.006	0.12	9.70	9.82
<i>Block Group 3</i>	0.017	0.68	28.00	28.70	0.006	0.09	9.70	9.80
<i>Census Tract 106.04</i>								
<i>Block Group 1</i>	0.029	0.71	28.00	28.74	0.006	0.10	9.70	9.81
<i>Block Group 2</i>	0.024	0.91	28.00	28.93	0.006	0.13	9.70	9.84

Tract Block Group	Particulate Matter (PM _{2.5}) - µg/m ³							
	24-hour: NAAQS = 35				Annual: NAAQS = 12			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 107</i>								
<i>Block Group 2</i>	0.007	0.79	28.00	28.80	0.006	0.10	9.70	9.81
<i>Census Tract 108.01</i>								
<i>Block Group 1</i>	0.010	0.99	28.00	29.00	0.006	0.14	9.70	9.85
<i>Block Group 2</i>	0.016	0.98	28.00	29.00	0.006	0.12	9.70	9.83
<i>Block Group 3</i>	0.012	1.10	28.00	29.11	0.006	0.12	9.70	9.83
<i>Census Tract 108.02</i>								
<i>Block Group 3</i>	0.027	4.87	28.00	32.89	0.008	1.09	9.70	10.80
<i>Census Tract 110</i>								
<i>Block Group 3</i>	0.011	0.63	28.00	28.64	0.006	0.08	9.70	9.78
<i>Census Tract 111</i>								
<i>Block Group 1</i>	0.004	0.71	28.00	28.71	0.006	0.08	9.70	9.79
<i>Block Group 3</i>	0.005	0.75	28.00	28.76	0.006	0.08	9.70	9.79
<i>Census Tract 112</i>								
<i>Block Group 1</i>	0.004	0.91	28.00	28.92	0.006	0.10	9.70	9.81
<i>Census Tract 113.01</i>								
<i>Block Group 2</i>	0.007	1.03	28.00	29.04	0.006	0.11	9.70	9.82
<i>Census Tract 113.02</i>								
<i>Block Group 1</i>	0.008	1.17	28.00	29.18	0.006	0.13	9.70	9.83
<i>Block Group 2</i>	0.003	0.90	28.00	28.90	0.006	0.11	9.70	9.82
<i>Census Tract 114.01</i>								
<i>Block Group 1</i>	0.001	0.73	28.00	28.73	0.006	0.10	9.70	9.81
<i>Block Group 2</i>	0.003	0.93	28.00	28.93	0.007	0.14	9.70	9.85
<i>Block Group 3</i>	0.001	1.90	28.00	29.90	0.008	0.27	9.70	9.98
<i>Census Tract 114.02</i>								
<i>Block Group 1</i>	0.007	1.72	28.00	29.73	0.007	0.23	9.70	9.94
<i>Block Group 2</i>	0.001	2.58	28.00	30.58	0.008	0.36	9.70	10.07
<i>Block Group 3</i>	0.004	0.77	28.00	28.77	0.006	0.10	9.70	9.81
<i>Census Tract 115</i>								
<i>Block Group 1</i>	0.008	0.67	28.00	28.68	0.006	0.08	9.70	9.79
<i>Block Group 3</i>	0.001	0.60	28.00	28.60	0.006	0.08	9.70	9.79
<i>Block Group 4</i>	0.002	0.66	28.00	28.66	0.006	0.09	9.70	9.79
<i>Block Group 5</i>	0.001	0.66	28.00	28.66	0.006	0.09	9.70	9.80
<i>Census Tract 116.01</i>								
<i>Block Group 1</i>	0.005	0.56	28.00	28.57	0.006	0.08	9.70	9.78
<i>Block Group 2</i>	0.009	0.48	28.00	28.49	0.006	0.07	9.70	9.77
<i>Census Tract 116.02</i>								
<i>Block Group 2</i>	0.003	0.57	28.00	28.57	0.006	0.07	9.70	9.78
<i>Census Tract 117.01</i>								
<i>Block Group 1</i>	0.018	0.85	28.00	28.87	0.006	0.10	9.70	9.81
<i>Block Group 2</i>	0.001	0.71	28.00	28.71	0.006	0.08	9.70	9.79
<i>Census Tract 117.02</i>								
<i>Block Group 2</i>	0.009	0.59	28.00	28.60	0.006	0.08	9.70	9.78
<i>Census Tract 118.01</i>								
<i>Block Group 1</i>	0.009	0.83	28.00	28.84	0.006	0.09	9.70	9.80
<i>Block Group 2</i>	0.003	0.95	28.00	28.96	0.006	0.10	9.70	9.81
<i>Block Group 3</i>	0.001	0.89	28.00	28.89	0.006	0.10	9.70	9.81
<i>Block Group 4</i>	0.011	0.73	28.00	28.74	0.006	0.08	9.70	9.79
<i>Census Tract 118.02</i>								
<i>Block Group 1</i>	0.005	0.55	28.00	28.56	0.005	0.07	9.70	9.77
<i>Block Group 2</i>	0.012	0.67	28.00	28.68	0.006	0.08	9.70	9.78
<i>Block Group 3</i>	0.008	0.67	28.00	28.68	0.006	0.08	9.70	9.79

Tract Block Group	Particulate Matter (PM _{2.5}) - µg/m ³							
	24-hour: NAAQS = 35				Annual: NAAQS = 12			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 120.02</i>								
<i>Block Group 1</i>	0.006	0.55	28.00	28.55	0.005	0.06	9.70	9.77
<i>Block Group 3</i>	0.011	0.46	28.00	28.47	0.005	0.05	9.70	9.76
<i>Block Group 4</i>	0.016	0.59	28.00	28.60	0.005	0.07	9.70	9.77
<i>Census Tract 120.03</i>								
<i>Block Group 1</i>	0.005	0.51	28.00	28.51	0.005	0.06	9.70	9.76
<i>Block Group 2</i>	0.007	0.52	28.00	28.53	0.005	0.06	9.70	9.77
<i>Block Group 3</i>	0.004	0.68	28.00	28.68	0.006	0.07	9.70	9.78
<i>Census Tract 120.04</i>								
<i>Block Group 1</i>	0.015	0.47	28.00	28.49	0.005	0.05	9.70	9.76
<i>Block Group 2</i>	0.012	0.44	28.00	28.45	0.005	0.05	9.70	9.76
<i>Census Tract 121.03</i>								
<i>Block Group 1</i>	0.006	0.60	28.00	28.61	0.006	0.07	9.70	9.78
<i>Census Tract 121.04</i>								
<i>Block Group 1</i>	0.007	0.66	28.00	28.66	0.006	0.08	9.70	9.78
<i>Block Group 2</i>	0.002	0.60	28.00	28.60	0.006	0.07	9.70	9.78
<i>Block Group 3</i>	0.001	0.49	28.00	28.49	0.005	0.06	9.70	9.77
<i>Census Tract 121.05</i>								
<i>Block Group 1</i>	0.004	0.34	28.00	28.35	0.004	0.04	9.70	9.75
<i>Block Group 2</i>	0.007	0.30	28.00	28.31	0.004	0.04	9.70	9.74
<i>Census Tract 121.06</i>								
<i>Block Group 1</i>	0.005	0.40	28.00	28.41	0.005	0.05	9.70	9.75
<i>Block Group 2</i>	0.005	0.37	28.00	28.37	0.005	0.05	9.70	9.75
<i>Census Tract 122.01</i>								
<i>Block Group 1</i>	0.001	1.01	28.00	29.01	0.007	0.16	9.70	9.86
<i>Block Group 2</i>	0.001	0.67	28.00	28.67	0.007	0.12	9.70	9.82
<i>Block Group 3</i>	0.004	1.16	28.00	29.16	0.007	0.17	9.70	9.88
<i>Census Tract 122.02</i>								
<i>Block Group 1</i>	0.002	0.39	28.00	28.39	0.008	0.06	9.70	9.77
<i>Block Group 2</i>	0.005	0.33	28.00	28.34	0.008	0.05	9.70	9.76
<i>Block Group 3</i>	0.003	0.31	28.00	28.31	0.01	0.04	9.70	9.75
<i>Census Tract 122.03</i>								
<i>Block Group 1</i>	0.006	0.50	28.00	28.51	0.008	0.08	9.70	9.78
<i>Block Group 2</i>	0.007	0.38	28.00	28.38	0.009	0.05	9.70	9.76
<i>Block Group 3</i>	0.001	0.47	28.00	28.47	0.008	0.06	9.70	9.77
<i>Census Tract 123.01</i>								
<i>Block Group 1</i>	0.09	0.11	28.00	28.20	0.04	0.03	9.70	9.77
<i>Block Group 2</i>	0.10	0.09	28.00	28.20	0.04	0.03	9.70	9.77
<i>Block Group 3</i>	0.06	0.15	28.00	28.21	0.04	0.03	9.70	9.76
<i>Block Group 4</i>	0.01	0.21	28.00	28.22	0.04	0.03	9.70	9.76
<i>Census Tract 123.04</i>								
<i>Block Group 1</i>	0.04	0.11	28.00	28.14	0.005	0.01	9.70	9.72
<i>Block Group 2</i>	0.02	0.12	28.00	28.14	0.005	0.01	9.70	9.72
<i>Block Group 3</i>	0.04	0.12	28.00	28.16	0.006	0.01	9.70	9.72
<i>Block Group 4</i>	0.04	0.28	28.00	28.31	0.006	0.02	9.70	9.73
<i>Census Tract 123.05</i>								
<i>Block Group 1</i>	0.03	0.11	28.00	28.14	0.009	0.01	9.70	9.72
<i>Census Tract 124.02</i>								
<i>Block Group 1</i>	0.005	0.33	28.00	28.33	0.008	0.05	9.70	9.76
<i>Block Group 2</i>	0.003	0.34	28.00	28.35	0.007	0.06	9.70	9.77
<i>Block Group 3</i>	0.001	0.39	28.00	28.39	0.007	0.06	9.70	9.77
<i>Block Group 4</i>	0.001	0.42	28.00	28.42	0.007	0.07	9.70	9.77

Tract Block Group	Particulate Matter (PM _{2.5}) - µg/m ³							
	24-hour: NAAQS = 35				Annual: NAAQS = 12			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 124.03</i>								
<i>Block Group 1</i>	0.002	0.56	28.00	28.56	0.006	0.11	9.70	9.81
<i>Block Group 2</i>	0.01	0.72	28.00	28.73	0.005	0.12	9.70	9.83
<i>Census Tract 124.04</i>								
<i>Block Group 1</i>	0.006	0.39	28.00	28.40	0.007	0.07	9.70	9.78
<i>Block Group 2</i>	0.0003	1.42	28.00	29.42	0.005	0.23	9.70	9.93
<i>Block Group 3</i>	0.001	0.42	28.00	28.42	0.006	0.09	9.70	9.80
<i>Census Tract 125.06</i>								
<i>Block Group 1</i>	0.02	0.38	28.00	28.39	0.005	0.07	9.70	9.77
<i>Block Group 2</i>	0.01	0.42	28.00	28.43	0.005	0.07	9.70	9.78
<i>Block Group 3</i>	0.002	0.36	28.00	28.36	0.005	0.06	9.70	9.76
<i>Census Tract 125.08</i>								
<i>Block Group 1</i>	0.01	0.28	28.00	28.30	0.004	0.04	9.70	9.75
<i>Block Group 2</i>	0.01	0.31	28.00	28.33	0.004	0.05	9.70	9.75
<i>Census Tract 125.09</i>								
<i>Block Group 1</i>	0.003	0.28	28.00	28.29	0.004	0.05	9.70	9.75
<i>Block Group 2</i>	0.004	0.29	28.00	28.30	0.004	0.05	9.70	9.75
<i>Census Tract 125.1</i>								
<i>Block Group 1</i>	0.002	0.29	28.00	28.29	0.004	0.04	9.70	9.74
<i>Block Group 2</i>	0.02	0.34	28.00	28.35	0.004	0.04	9.70	9.75
<i>Block Group 3</i>	0.001	0.39	28.00	28.39	0.005	0.05	9.70	9.76
<i>Census Tract 125.11</i>								
<i>Block Group 1</i>	0.02	0.29	28.00	28.31	0.004	0.04	9.70	9.74
<i>Block Group 2</i>	0.001	0.59	28.00	28.59	0.006	0.08	9.70	9.79
<i>Block Group 3</i>	0.001	0.54	28.00	28.54	0.006	0.08	9.70	9.78
<i>Census Tract 125.12</i>								
<i>Block Group 2</i>	0.03	0.21	28.00	28.24	0.004	0.04	9.70	9.74
<i>Census Tract 125.13</i>								
<i>Block Group 1</i>	0.006	0.37	28.00	28.37	0.005	0.06	9.70	9.77
<i>Block Group 2</i>	0.009	0.29	28.00	28.30	0.004	0.05	9.70	9.75
<i>Census Tract 125.14</i>								
<i>Block Group 1</i>	0.005	0.26	28.00	28.26	0.004	0.04	9.70	9.75
<i>Census Tract 125.15</i>								
<i>Block Group 1</i>	0.008	0.28	28.00	28.29	0.004	0.05	9.70	9.75
<i>Census Tract 125.16</i>								
<i>Block Group 2</i>	0.006	0.25	28.00	28.25	0.004	0.04	9.70	9.74
<i>Block Group 3</i>	0.01	0.23	28.00	28.24	0.004	0.04	9.70	9.74
<i>Census Tract 125.17</i>								
<i>Block Group 1</i>	0.002	0.27	28.00	28.27	0.004	0.04	9.70	9.75
<i>Block Group 3</i>	0.001	0.28	28.00	28.28	0.004	0.05	9.70	9.75
<i>Census Tract 126.07</i>								
<i>Block Group 1</i>	0.007	0.32	28.00	28.33	0.006	0.06	9.70	9.77
<i>Block Group 2</i>	0.008	0.38	28.00	28.39	0.005	0.07	9.70	9.77
<i>Census Tract 126.08</i>								
<i>Block Group 1</i>	0.02	0.35	28.00	28.37	0.005	0.08	9.70	9.79
<i>Block Group 3</i>	0.003	0.37	28.00	28.37	0.005	0.07	9.70	9.78
<i>Block Group 4</i>	0.01	0.35	28.00	28.36	0.005	0.07	9.70	9.77
<i>Census Tract 126.13</i>								
<i>Block Group 2</i>	0.007	0.31	28.00	28.31	0.005	0.05	9.70	9.76
<i>Block Group 3</i>	0.02	0.32	28.00	28.34	0.005	0.06	9.70	9.76
<i>Block Group 4</i>	0.007	0.31	28.00	28.32	0.005	0.05	9.70	9.76
<i>Census Tract 126.14</i>								
<i>Block Group 1</i>	0.009	0.34	28.00	28.35	0.005	0.06	9.70	9.76

Tract Block Group	Particulate Matter (PM _{2.5}) - µg/m ³							
	24-hour: NAAQS = 35				Annual: NAAQS = 12			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 126.15</i>								
<i>Block Group 2</i>	0.005	0.37	28.00	28.37	0.005	0.06	9.70	9.77
<i>Block Group 3</i>	0.02	0.36	28.00	28.38	0.005	0.06	9.70	9.77
<i>Census Tract 126.16</i>								
<i>Block Group 1</i>	0.01	0.35	28.00	28.36	0.005	0.06	9.70	9.76
<i>Block Group 2</i>	0.007	0.34	28.00	28.35	0.005	0.06	9.70	9.76
<i>Census Tract 126.17</i>								
<i>Block Group 1</i>	0.003	0.33	28.00	28.33	0.005	0.05	9.70	9.76
<i>Block Group 2</i>	0.004	0.33	28.00	28.33	0.004	0.05	9.70	9.76
<i>Census Tract 127</i>								
<i>Block Group 2</i>	0.01	4.68	28.00	32.70	0.007	2.16	9.70	11.87
<i>Block Group 3</i>	0.02	0.32	28.00	28.34	0.006	0.07	9.70	9.77
<i>Block Group 4</i>	0.009	0.32	28.00	28.33	0.006	0.06	9.70	9.77
<i>Census Tract 128</i>								
<i>Block Group 1</i>	0.01	0.25	28.00	28.25	0.004	0.04	9.70	9.74
<i>Block Group 2</i>	0.01	0.24	28.00	28.25	0.004	0.04	9.70	9.74
<i>Block Group 4</i>	0.02	0.24	28.00	28.25	0.004	0.04	9.70	9.74
<i>Census Tract 129</i>								
<i>Block Group 3</i>	0.006	0.25	28.00	28.25	0.004	0.04	9.70	9.75
<i>Block Group 4</i>	0.001	0.27	28.00	28.27	0.004	0.04	9.70	9.75
<i>Census Tract 130.02</i>								
<i>Block Group 1</i>	0.005	0.30	28.00	28.31	0.005	0.05	9.70	9.75
<i>Block Group 3</i>	0.005	0.28	28.00	28.29	0.005	0.05	9.70	9.75
<i>Census Tract 130.03</i>								
<i>Block Group 1</i>	0.005	0.27	28.00	28.27	0.004	0.04	9.70	9.75
<i>Block Group 2</i>	0.001	0.29	28.00	28.29	0.004	0.05	9.70	9.75
<i>Census Tract 130.04</i>								
<i>Block Group 3</i>	0.007	0.27	28.00	28.27	0.005	0.04	9.70	9.75
<i>Census Tract 131.02</i>								
<i>Block Group 1</i>	0.02	0.43	28.00	28.45	0.005	0.08	9.70	9.79
<i>Block Group 2</i>	0.003	1.15	28.00	29.15	0.005	0.18	9.70	9.88
<i>Census Tract 131.04</i>								
<i>Block Group 2</i>	0.004	0.31	28.00	28.31	0.005	0.06	9.70	9.76
<i>Block Group 3</i>	0.007	0.30	28.00	28.31	0.005	0.05	9.70	9.76
<i>Census Tract 131.06</i>								
<i>Block Group 2</i>	0.02	0.29	28.00	28.31	0.005	0.05	9.70	9.75
<i>Block Group 3</i>	0.02	0.40	28.00	28.42	0.005	0.06	9.70	9.77
<i>Census Tract 132.03</i>								
<i>Block Group 1</i>	0.04	0.31	28.00	28.35	0.005	0.06	9.70	9.76
<i>Block Group 2</i>	0.01	0.36	28.00	28.38	0.005	0.06	9.70	9.77
<i>Census Tract 132.04</i>								
<i>Block Group 1</i>	0.010	0.32	28.00	28.33	0.005	0.05	9.70	9.76
<i>Census Tract 132.05</i>								
<i>Block Group 2</i>	0.008	0.38	28.00	28.39	0.005	0.06	9.70	9.77
<i>Census Tract 132.06</i>								
<i>Block Group 2</i>	0.02	0.30	28.00	28.31	0.005	0.05	9.70	9.76
<i>Block Group 3</i>	0.02	0.31	28.00	28.33	0.005	0.05	9.70	9.76
<i>Census Tract 132.07</i>								
<i>Block Group 1</i>	0.03	0.28	28.00	28.31	0.006	0.05	9.70	9.76
<i>Census Tract 133.03</i>								
<i>Block Group 2</i>	0.02	0.59	28.00	28.61	0.005	0.08	9.70	9.79
<i>Census Tract 133.05</i>								
<i>Block Group 2</i>	0.010	0.32	28.00	28.33	0.005	0.05	9.70	9.75
<i>Block Group 4</i>	0.01	0.29	28.00	28.30	0.005	0.04	9.70	9.75

Tract Block Group	Particulate Matter (PM _{2.5}) - µg/m ³							
	24-hour: NAAQS = 35				Annual: NAAQS = 12			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 133.06</i>								
<i>Block Group 2</i>	0.01	0.27	28.00	28.28	0.005	0.04	9.70	9.75
<i>Census Tract 133.07</i>								
<i>Block Group 2</i>	0.02	0.25	28.00	28.27	0.005	0.04	9.70	9.74
<i>Census Tract 133.08</i>								
<i>Block Group 2</i>	0.01	0.28	28.00	28.29	0.005	0.04	9.70	9.75
<i>Census Tract 133.09</i>								
<i>Block Group 2</i>	0.01	0.26	28.00	28.28	0.005	0.04	9.70	9.74
<i>Census Tract 134.01</i>								
<i>Block Group 1</i>	0.01	0.28	28.00	28.29	0.005	0.05	9.70	9.75
<i>Census Tract 134.02</i>								
<i>Block Group 1</i>	0.02	0.26	28.00	28.28	0.004	0.04	9.70	9.75
<i>Block Group 3</i>	0.01	0.30	28.00	28.31	0.005	0.05	9.70	9.75
<i>Census Tract 135</i>								
<i>Block Group 1</i>	0.03	0.23	28.00	28.26	0.004	0.04	9.70	9.75
<i>Block Group 2</i>	0.009	0.26	28.00	28.27	0.005	0.04	9.70	9.75
<i>Census Tract 136</i>								
<i>Block Group 1</i>	0.02	0.22	28.00	28.25	0.004	0.04	9.70	9.74
<i>Block Group 4</i>	0.01	0.23	28.00	28.24	0.004	0.04	9.70	9.74
<i>Census Tract 137</i>								
<i>Block Group 1</i>	0.004	0.25	28.00	28.25	0.004	0.04	9.70	9.74
<i>Census Tract 138.01</i>								
<i>Block Group 2</i>	0.02	0.24	28.00	28.26	0.004	0.04	9.70	9.74
<i>Census Tract 138.02</i>								
<i>Block Group 4</i>	0.02	0.23	28.00	28.26	0.004	0.04	9.70	9.74
<i>Census Tract 139.02</i>								
<i>Block Group 1</i>	0.01	0.27	28.00	28.28	0.005	0.04	9.70	9.75
<i>Block Group 3</i>	0.02	0.24	28.00	28.26	0.004	0.04	9.70	9.74
<i>Census Tract 139.03</i>								
<i>Block Group 1</i>	0.01	0.28	28.00	28.29	0.005	0.04	9.70	9.75
<i>Block Group 2</i>	0.04	0.24	28.00	28.28	0.005	0.04	9.70	9.75
<i>Census Tract 140.01</i>								
<i>Block Group 1</i>	0.01	0.22	28.00	28.24	0.004	0.04	9.70	9.74
<i>Block Group 3</i>	0.01	0.23	28.00	28.25	0.004	0.04	9.70	9.74
<i>Census Tract 140.02</i>								
<i>Block Group 1</i>	0.03	0.23	28.00	28.26	0.004	0.04	9.70	9.74
<i>Census Tract 141.01</i>								
<i>Block Group 2</i>	0.003	0.27	28.00	28.28	0.005	0.04	9.70	9.75
<i>Block Group 4</i>	0.01	0.29	28.00	28.30	0.005	0.04	9.70	9.75
<i>Census Tract 141.02</i>								
<i>Block Group 1</i>	0.004	0.29	28.00	28.29	0.006	0.05	9.70	9.75
<i>Block Group 2</i>	0.02	0.26	28.00	28.28	0.006	0.05	9.70	9.75
<i>Block Group 3</i>	0.02	0.25	28.00	28.28	0.006	0.05	9.70	9.75
<i>Census Tract 141.03</i>								
<i>Block Group 1</i>	0.03	0.24	28.00	28.26	0.005	0.04	9.70	9.75
<i>Block Group 2</i>	0.03	0.39	28.00	28.42	0.007	0.10	9.70	9.80
<i>Block Group 3</i>	0.01	0.26	28.00	28.27	0.005	0.04	9.70	9.74
<i>Census Tract 142.01</i>								
<i>Block Group 2</i>	0.08	0.13	28.00	28.21	0.02	0.03	9.70	9.74
<i>Census Tract 142.02</i>								
<i>Block Group 1</i>	0.01	0.34	28.00	28.35	0.007	0.08	9.70	9.78
<i>Block Group 2</i>	0.002	1.83	28.00	29.83	0.007	1.33	9.70	11.04

Tract Block Group	Particulate Matter (PM _{2.5}) - µg/m ³							
	24-hour: NAAQS = 35				Annual: NAAQS = 12			
	Project	Offsite	Background	Total	Project	Offsite	Background	Total
<i>Census Tract 143</i>								
<i>Block Group 1</i>	0.02	0.33	28.00	28.34	0.005	0.06	9.70	9.76
<i>Block Group 2</i>	0.02	0.30	28.00	28.32	0.005	0.05	9.70	9.76
<i>Block Group 3</i>	0.01	0.41	28.00	28.43	0.005	0.06	9.70	9.77
<i>Census Tract 144.01</i>								
<i>Block Group 1</i>	0.001	0.78	28.00	28.78	0.005	0.09	9.70	9.79
<i>Block Group 2</i>	0.004	0.41	28.00	28.41	0.005	0.07	9.70	9.77
<i>Block Group 3</i>	0.0003	0.49	28.00	28.49	0.005	0.08	9.70	9.78
<i>Census Tract 144.02</i>								
<i>Block Group 1</i>	0.007	0.38	28.00	28.39	0.005	0.06	9.70	9.77
<i>Block Group 2</i>	0.005	0.49	28.00	28.50	0.005	0.08	9.70	9.78
<i>Block Group 3</i>	0.005	0.38	28.00	28.38	0.005	0.06	9.70	9.77
<i>Census Tract 144.03</i>								
<i>Block Group 1</i>	0.01	0.30	28.00	28.31	0.006	0.06	9.70	9.77
<i>Block Group 2</i>	0.04	0.31	28.00	28.34	0.005	0.06	9.70	9.77
<i>Census Tract 144.04</i>								
<i>Block Group 1</i>	0.004	0.39	28.00	28.39	0.005	0.06	9.70	9.77
<i>Block Group 2</i>	0.001	0.47	28.00	28.47	0.005	0.07	9.70	9.78
<i>Census Tract 145.01</i>								
<i>Block Group 2</i>	0.004	0.32	28.00	28.33	0.005	0.06	9.70	9.76
<i>Block Group 3</i>	0.02	0.31	28.00	28.33	0.005	0.07	9.70	9.77
<i>Census Tract 145.02</i>								
<i>Block Group 2</i>	0.00	0.33	28.00	28.33	0.005	0.07	9.70	9.77
<i>Block Group 3</i>	0.002	0.35	28.00	28.36	0.005	0.06	9.70	9.77
<i>Census Tract 9504</i>								
<i>Block Group 1</i>	0.006	0.32	28.00	28.33	0.01	0.07	9.70	9.78
<i>Census Tract 9505</i>								
<i>Block Group 2</i>	0.006	0.42	28.00	28.43	0.009	0.09	9.70	9.80
<i>Census Tract 9506</i>								
<i>Block Group 1</i>	0.01	0.57	28.00	28.58	0.009	0.14	9.70	9.85
<i>Census Tract 9507</i>								
<i>Block Group 1</i>	0.005	0.33	28.00	28.34	0.01	0.05	9.70	9.76
<i>Census Tract 9800.01</i>								
<i>Block Group 1</i>	0.03	2.09	28.00	30.12	0.008	0.56	9.70	10.27
<i>Census Tract 9801</i>								
<i>Block Group 1</i>	0.009	0.31	28.00	28.32	0.005	0.05	9.70	9.76
<i>Census Tract 9900</i>								
<i>Block Group 0</i>	0.03	0.13	28.00	28.16	0.004	0.01	9.70	9.72

Tract Block Group	Particulate Matter (PM ₁₀) - µg/m ³			
	24-hour: NAAQS = 150			
	Project	Offsite	Background	Total
<i>Census Tract 101.01</i>				
<i>Block Group 1</i>	0.001	47.59	60.00	107.59
<i>Block Group 2</i>	0.006	7.59	60.00	67.59
<i>Block Group 3</i>	0.0003	7.45	60.00	67.45
<i>Census Tract 101.02</i>				
<i>Block Group 1</i>	0.002	3.53	60.00	63.53
<i>Block Group 2</i>	0.008	2.78	60.00	62.78
<i>Block Group 3</i>	0.001	4.83	60.00	64.83
<i>Census Tract 101.03</i>				
<i>Block Group 1</i>	0.02	6.80	60.00	66.82
<i>Block Group 2</i>	0.001	8.70	60.00	68.70
<i>Census Tract 102.01</i>				
<i>Block Group 1</i>	0.001	8.72	60.00	68.72
<i>Block Group 2</i>	0.0004	10.55	60.00	70.55
<i>Census Tract 102.04</i>				
<i>Block Group 1</i>	0.01	8.86	60.00	68.87
<i>Block Group 2</i>	0.03	7.67	60.00	67.70
<i>Census Tract 102.05</i>				
<i>Block Group 1</i>	0.0003	22.04	60.00	82.04
<i>Block Group 2</i>	0.04	6.07	60.00	66.10
<i>Block Group 3</i>	0.02	4.41	60.00	64.43
<i>Block Group 4</i>	0.01	5.54	60.00	65.55
<i>Census Tract 103.01</i>				
<i>Block Group 3</i>	0.01	3.87	60.00	63.88
<i>Census Tract 103.03</i>				
<i>Block Group 1</i>	0.02	3.68	60.00	63.70
<i>Census Tract 103.04</i>				
<i>Block Group 1</i>	0.002	3.50	60.00	63.51
<i>Block Group 2</i>	0.001	3.45	60.00	63.45
<i>Census Tract 104.03</i>				
<i>Block Group 1</i>	0.01	4.72	60.00	64.73
<i>Block Group 2</i>	0.0003	4.14	60.00	64.14
<i>Census Tract 104.04</i>				
<i>Block Group 1</i>	0.02	3.55	60.00	63.57
<i>Block Group 2</i>	0.02	4.56	60.00	64.57
<i>Census Tract 104.05</i>				
<i>Block Group 1</i>	0.001	3.80	60.00	63.80
<i>Block Group 2</i>	0.02	4.11	60.00	64.13
<i>Block Group 3</i>	0.001	4.01	60.00	64.01
<i>Census Tract 104.06</i>				
<i>Block Group 1</i>	0.009	4.46	60.00	64.47
<i>Block Group 2</i>	0.01	4.29	60.00	64.30
<i>Census Tract 105</i>				
<i>Block Group 1</i>	0.02	5.08	60.00	65.09
<i>Block Group 2</i>	0.009	5.09	60.00	65.10
<i>Census Tract 106.02</i>				
<i>Block Group 1</i>	0.01	5.86	60.00	65.87
<i>Census Tract 106.03</i>				
<i>Block Group 1</i>	0.04	6.07	60.00	66.11
<i>Block Group 2</i>	0.02	7.01	60.00	67.02
<i>Block Group 3</i>	0.006	5.10	60.00	65.11
<i>Census Tract 106.04</i>				
<i>Block Group 1</i>	0.02	5.60	60.00	65.62
<i>Block Group 2</i>	0.04	7.14	60.00	67.18

Tract Block Group	Particulate Matter (PM ₁₀) - µg/m ³			
	24-hour: NAAQS = 150			
	Project	Offsite	Background	Total
<i>Census Tract 107</i>				
<i>Block Group 2</i>	0.008	5.86	60.00	65.87
<i>Census Tract 108.01</i>				
<i>Block Group 1</i>	0.02	6.63	60.00	66.65
<i>Block Group 2</i>	0.01	6.88	60.00	66.89
<i>Block Group 3</i>	0.02	6.96	60.00	66.98
<i>Census Tract 108.02</i>				
<i>Block Group 3</i>	0.04	42.21	60.00	102.25
<i>Census Tract 110</i>				
<i>Block Group 3</i>	0.006	4.81	60.00	64.82
<i>Census Tract 111</i>				
<i>Block Group 1</i>	0.007	5.26	60.00	65.27
<i>Block Group 3</i>	0.01	5.59	60.00	65.60
<i>Census Tract 112</i>				
<i>Block Group 1</i>	0.010	6.42	60.00	66.43
<i>Census Tract 113.01</i>				
<i>Block Group 2</i>	0.003	7.11	60.00	67.11
<i>Census Tract 113.02</i>				
<i>Block Group 1</i>	0.01	7.68	60.00	67.70
<i>Block Group 2</i>	0.02	9.23	60.00	69.24
<i>Census Tract 114.01</i>				
<i>Block Group 1</i>	0.001	6.31	60.00	66.31
<i>Block Group 2</i>	0.001	6.78	60.00	66.78
<i>Block Group 3</i>	0.002	14.37	60.00	74.37
<i>Census Tract 114.02</i>				
<i>Block Group 1</i>	0.001	18.04	60.00	78.04
<i>Block Group 2</i>	0.0003	26.27	60.00	86.27
<i>Block Group 3</i>	0.01	6.51	60.00	66.52
<i>Census Tract 115</i>				
<i>Block Group 1</i>	0.0003	8.43	60.00	68.43
<i>Block Group 3</i>	0.001	14.03	60.00	74.03
<i>Block Group 4</i>	0.001	5.80	60.00	65.80
<i>Block Group 5</i>	0.003	6.13	60.00	66.13
<i>Census Tract 116.01</i>				
<i>Block Group 1</i>	0.0003	6.51	60.00	66.52
<i>Block Group 2</i>	0.0004	5.41	60.00	65.41
<i>Census Tract 116.02</i>				
<i>Block Group 2</i>	0.005	6.36	60.00	66.37
<i>Census Tract 117.01</i>				
<i>Block Group 1</i>	0.03	8.27	60.00	68.29
<i>Block Group 2</i>	0.001	5.89	60.00	65.89
<i>Census Tract 117.02</i>				
<i>Block Group 2</i>	0.02	5.81	60.00	65.82
<i>Census Tract 118.01</i>				
<i>Block Group 1</i>	0.0003	6.46	60.00	66.46
<i>Block Group 2</i>	0.003	6.01	60.00	66.01
<i>Block Group 3</i>	0.000	8.19	60.00	68.19
<i>Block Group 4</i>	0.004	5.59	60.00	65.60
<i>Census Tract 118.02</i>				
<i>Block Group 1</i>	0.03	4.87	60.00	64.90
<i>Block Group 2</i>	0.005	5.23	60.00	65.23
<i>Block Group 3</i>	0.0005	6.34	60.00	66.34

Tract Block Group	Particulate Matter (PM ₁₀) - µg/m ³			
	24-hour: NAAQS = 150			
	Project	Offsite	Background	Total
<i>Census Tract 120.02</i>				
<i>Block Group 1</i>	0.001	4.45	60.00	64.46
<i>Block Group 3</i>	0.01	3.74	60.00	63.75
<i>Block Group 4</i>	0.02	4.70	60.00	64.72
<i>Census Tract 120.03</i>				
<i>Block Group 1</i>	0.002	4.22	60.00	64.22
<i>Block Group 2</i>	0.003	4.34	60.00	64.34
<i>Block Group 3</i>	0.006	4.84	60.00	64.84
<i>Census Tract 120.04</i>				
<i>Block Group 1</i>	0.003	4.07	60.00	64.07
<i>Block Group 2</i>	0.03	3.76	60.00	63.79
<i>Census Tract 121.03</i>				
<i>Block Group 1</i>	0.001	4.96	60.00	64.96
<i>Census Tract 121.04</i>				
<i>Block Group 1</i>	0.03	6.42	60.00	66.45
<i>Block Group 2</i>	0.001	5.67	60.00	65.67
<i>Block Group 3</i>	0.008	4.59	60.00	64.59
<i>Census Tract 121.05</i>				
<i>Block Group 1</i>	0.001	3.37	60.00	63.37
<i>Block Group 2</i>	0.001	3.55	60.00	63.55
<i>Census Tract 121.06</i>				
<i>Block Group 1</i>	0.005	3.95	60.00	63.96
<i>Block Group 2</i>	0.02	4.67	60.00	64.69
<i>Census Tract 122.01</i>				
<i>Block Group 1</i>	0.002	8.54	60.00	68.55
<i>Block Group 2</i>	0.04	5.82	60.00	65.86
<i>Block Group 3</i>	0.000	10.52	60.00	70.53
<i>Census Tract 122.02</i>				
<i>Block Group 1</i>	0.009	3.14	60.00	63.15
<i>Block Group 2</i>	0.001	3.01	60.00	63.01
<i>Block Group 3</i>	0.02	3.41	60.00	63.44
<i>Census Tract 122.03</i>				
<i>Block Group 1</i>	0.0004	4.17	60.00	64.17
<i>Block Group 2</i>	0.001	3.27	60.00	63.27
<i>Block Group 3</i>	0.001	4.75	60.00	64.75
<i>Census Tract 123.01</i>				
<i>Block Group 1</i>	0.05	1.39	60.00	61.43
<i>Block Group 2</i>	0.02	1.51	60.00	61.53
<i>Block Group 3</i>	0.001	2.44	60.00	62.44
<i>Block Group 4</i>	0.005	2.16	60.00	62.16
<i>Census Tract 123.04</i>				
<i>Block Group 1</i>	0.03	0.98	60.00	61.00
<i>Block Group 2</i>	0.02	1.02	60.00	61.05
<i>Block Group 3</i>	0.007	1.06	60.00	61.07
<i>Block Group 4</i>	0.20	0.94	60.00	61.14
<i>Census Tract 123.05</i>				
<i>Block Group 1</i>	0.008	1.35	60.00	61.36
<i>Census Tract 124.02</i>				
<i>Block Group 1</i>	0.001	2.61	60.00	62.61
<i>Block Group 2</i>	0.001	2.62	60.00	62.62
<i>Block Group 3</i>	0.002	3.32	60.00	63.32
<i>Block Group 4</i>	0.001	3.55	60.00	63.55

Tract Block Group	Particulate Matter (PM ₁₀) - µg/m ³			
	24-hour: NAAQS = 150			
	Project	Offsite	Background	Total
<i>Census Tract 124.03</i>				
<i>Block Group 1</i>	0.001	4.84	60.00	64.84
<i>Block Group 2</i>	0.001	5.13	60.00	65.13
<i>Census Tract 124.04</i>				
<i>Block Group 1</i>	0.001	3.22	60.00	63.22
<i>Block Group 2</i>	0.01	18.53	60.00	78.54
<i>Block Group 3</i>	0.008	3.40	60.00	63.41
<i>Census Tract 125.06</i>				
<i>Block Group 1</i>	0.002	3.33	60.00	63.33
<i>Block Group 2</i>	0.02	3.93	60.00	63.94
<i>Block Group 3</i>	0.01	3.47	60.00	63.48
<i>Census Tract 125.08</i>				
<i>Block Group 1</i>	0.004	2.49	60.00	62.49
<i>Block Group 2</i>	0.01	2.67	60.00	62.68
<i>Census Tract 125.09</i>				
<i>Block Group 1</i>	0.002	2.42	60.00	62.42
<i>Block Group 2</i>	0.004	2.61	60.00	62.61
<i>Census Tract 125.1</i>				
<i>Block Group 1</i>	0.005	3.35	60.00	63.36
<i>Block Group 2</i>	0.0004	3.38	60.00	63.38
<i>Block Group 3</i>	0.001	4.02	60.00	64.02
<i>Census Tract 125.11</i>				
<i>Block Group 1</i>	0.001	3.31	60.00	63.31
<i>Block Group 2</i>	0.0004	4.82	60.00	64.83
<i>Block Group 3</i>	0.001	4.85	60.00	64.85
<i>Census Tract 125.12</i>				
<i>Block Group 2</i>	0.001	2.06	60.00	62.06
<i>Census Tract 125.13</i>				
<i>Block Group 1</i>	0.008	3.24	60.00	63.25
<i>Block Group 2</i>	0.02	2.76	60.00	62.78
<i>Census Tract 125.14</i>				
<i>Block Group 1</i>	0.06	2.28	60.00	62.33
<i>Census Tract 125.15</i>				
<i>Block Group 1</i>	0.002	2.35	60.00	62.35
<i>Census Tract 125.16</i>				
<i>Block Group 2</i>	0.02	2.31	60.00	62.32
<i>Block Group 3</i>	0.02	2.25	60.00	62.27
<i>Census Tract 125.17</i>				
<i>Block Group 1</i>	0.002	2.37	60.00	62.38
<i>Block Group 3</i>	0.02	2.30	60.00	62.33
<i>Census Tract 126.07</i>				
<i>Block Group 1</i>	0.007	2.23	60.00	62.23
<i>Block Group 2</i>	0.001	2.71	60.00	62.71
<i>Census Tract 126.08</i>				
<i>Block Group 1</i>	0.0001	2.50	60.00	62.50
<i>Block Group 3</i>	0.001	2.90	60.00	62.90
<i>Block Group 4</i>	0.02	2.68	60.00	62.70
<i>Census Tract 126.13</i>				
<i>Block Group 2</i>	0.003	2.28	60.00	62.29
<i>Block Group 3</i>	0.005	2.62	60.00	62.62
<i>Block Group 4</i>	0.001	2.45	60.00	62.45
<i>Census Tract 126.14</i>				
<i>Block Group 1</i>	0.004	2.48	60.00	62.49

Tract Block Group	Particulate Matter (PM ₁₀) - µg/m ³			
	24-hour: NAAQS = 150			
	Project	Offsite	Background	Total
<i>Census Tract 126.15</i>				
<i>Block Group 2</i>	0.001	2.73	60.00	62.73
<i>Block Group 3</i>	0.001	2.75	60.00	62.76
<i>Census Tract 126.16</i>				
<i>Block Group 1</i>	0.002	2.91	60.00	62.92
<i>Block Group 2</i>	0.012	2.69	60.00	62.71
<i>Census Tract 126.17</i>				
<i>Block Group 1</i>	0.001	2.52	60.00	62.52
<i>Block Group 2</i>	0.003	2.51	60.00	62.51
<i>Census Tract 127</i>				
<i>Block Group 2</i>	0.001	45.14	60.00	105.14
<i>Block Group 3</i>	0.001	2.50	60.00	62.50
<i>Block Group 4</i>	0.06	2.27	60.00	62.33
<i>Census Tract 128</i>				
<i>Block Group 1</i>	0.02	2.03	60.00	62.05
<i>Block Group 2</i>	0.001	2.02	60.00	62.02
<i>Block Group 4</i>	0.002	2.27	60.00	62.27
<i>Census Tract 129</i>				
<i>Block Group 3</i>	0.001	2.05	60.00	62.05
<i>Block Group 4</i>	0.01	2.02	60.00	62.03
<i>Census Tract 130.02</i>				
<i>Block Group 1</i>	0.001	2.25	60.00	62.25
<i>Block Group 3</i>	0.001	2.19	60.00	62.20
<i>Census Tract 130.03</i>				
<i>Block Group 1</i>	0.004	2.15	60.00	62.15
<i>Block Group 2</i>	0.001	2.13	60.00	62.13
<i>Census Tract 130.04</i>				
<i>Block Group 3</i>	0.001	2.01	60.00	62.01
<i>Census Tract 131.02</i>				
<i>Block Group 1</i>	0.003	2.48	60.00	62.48
<i>Block Group 2</i>	0.01	4.61	60.00	64.62
<i>Census Tract 131.04</i>				
<i>Block Group 2</i>	0.003	2.48	60.00	62.48
<i>Block Group 3</i>	0.02	2.10	60.00	62.12
<i>Census Tract 131.06</i>				
<i>Block Group 2</i>	0.002	2.09	60.00	62.09
<i>Block Group 3</i>	0.13	2.20	60.00	62.33
<i>Census Tract 132.03</i>				
<i>Block Group 1</i>	0.02	2.25	60.00	62.27
<i>Block Group 2</i>	0.01	2.21	60.00	62.23
<i>Census Tract 132.04</i>				
<i>Block Group 1</i>	0.02	2.13	60.00	62.15
<i>Census Tract 132.05</i>				
<i>Block Group 2</i>	0.001	2.37	60.00	62.37
<i>Census Tract 132.06</i>				
<i>Block Group 2</i>	0.001	2.22	60.00	62.22
<i>Block Group 3</i>	0.007	2.29	60.00	62.30
<i>Census Tract 132.07</i>				
<i>Block Group 1</i>	0.05	2.09	60.00	62.14
<i>Census Tract 133.03</i>				
<i>Block Group 2</i>	0.04	2.99	60.00	63.03
<i>Census Tract 133.05</i>				
<i>Block Group 2</i>	0.01	2.04	60.00	62.05
<i>Block Group 4</i>	0.01	1.85	60.00	61.86

Tract Block Group	Particulate Matter (PM ₁₀) - µg/m ³			
	24-hour: NAAQS = 150			
	Project	Offsite	Background	Total
<i>Census Tract 133.06</i>				
<i>Block Group 2</i>	0.004	1.82	60.00	61.82
<i>Census Tract 133.07</i>				
<i>Block Group 2</i>	0.001	1.73	60.00	61.74
<i>Census Tract 133.08</i>				
<i>Block Group 2</i>	0.003	1.84	60.00	61.84
<i>Census Tract 133.09</i>				
<i>Block Group 2</i>	0.002	1.90	60.00	61.90
<i>Census Tract 134.01</i>				
<i>Block Group 1</i>	0.001	2.12	60.00	62.12
<i>Census Tract 134.02</i>				
<i>Block Group 1</i>	0.001	2.02	60.00	62.02
<i>Block Group 3</i>	0.02	1.95	60.00	61.97
<i>Census Tract 135</i>				
<i>Block Group 1</i>	0.001	1.94	60.00	61.94
<i>Block Group 2</i>	0.001	1.87	60.00	61.87
<i>Census Tract 136</i>				
<i>Block Group 1</i>	0.001	1.98	60.00	61.98
<i>Block Group 4</i>	0.006	1.94	60.00	61.95
<i>Census Tract 137</i>				
<i>Block Group 1</i>	0.002	1.98	60.00	61.98
<i>Census Tract 138.01</i>				
<i>Block Group 2</i>	0.01	1.94	60.00	61.95
<i>Census Tract 138.02</i>				
<i>Block Group 4</i>	0.01	1.82	60.00	61.83
<i>Census Tract 139.02</i>				
<i>Block Group 1</i>	0.01	1.83	60.00	61.84
<i>Block Group 3</i>	0.02	1.88	60.00	61.89
<i>Census Tract 139.03</i>				
<i>Block Group 1</i>	0.02	1.80	60.00	61.82
<i>Block Group 2</i>	0.001	1.88	60.00	61.88
<i>Census Tract 140.01</i>				
<i>Block Group 1</i>	0.002	1.82	60.00	61.82
<i>Block Group 3</i>	0.01	1.76	60.00	61.77
<i>Census Tract 140.02</i>				
<i>Block Group 1</i>	0.04	1.75	60.00	61.79
<i>Census Tract 141.01</i>				
<i>Block Group 2</i>	0.01	1.74	60.00	61.75
<i>Block Group 4</i>	0.001	1.84	60.00	61.84
<i>Census Tract 141.02</i>				
<i>Block Group 1</i>	0.0001	1.90	60.00	61.90
<i>Block Group 2</i>	0.001	1.80	60.00	61.80
<i>Block Group 3</i>	0.010	1.81	60.00	61.82
<i>Census Tract 141.03</i>				
<i>Block Group 1</i>	0.011	1.62	60.00	61.63
<i>Block Group 2</i>	0.02	3.35	60.00	63.37
<i>Block Group 3</i>	0.003	1.68	60.00	61.68
<i>Census Tract 142.01</i>				
<i>Block Group 2</i>	0.006	1.16	60.00	61.16
<i>Census Tract 142.02</i>				
<i>Block Group 1</i>	0.002	6.86	60.00	66.86
<i>Block Group 2</i>	0.002	12.82	60.00	72.82

Tract Block Group	Particulate Matter (PM ₁₀) - µg/m ³			
	24-hour: NAAQS = 150			
	Project	Offsite	Background	Total
<i>Census Tract 143</i>				
<i>Block Group 1</i>	0.000	2.04	60.00	62.04
<i>Block Group 2</i>	0.005	2.10	60.00	62.10
<i>Block Group 3</i>	0.01	2.32	60.00	62.33
<i>Census Tract 144.01</i>				
<i>Block Group 1</i>	0.001	16.30	60.00	76.30
<i>Block Group 2</i>	0.008	3.67	60.00	63.67
<i>Block Group 3</i>	0.001	4.49	60.00	64.49
<i>Census Tract 144.02</i>				
<i>Block Group 1</i>	0.002	3.01	60.00	63.01
<i>Block Group 2</i>	0.02	5.40	60.00	65.42
<i>Block Group 3</i>	0.011	3.03	60.00	63.04
<i>Census Tract 144.03</i>				
<i>Block Group 1</i>	0.02	2.27	60.00	62.28
<i>Block Group 2</i>	0.001	2.55	60.00	62.56
<i>Census Tract 144.04</i>				
<i>Block Group 1</i>	0.02	3.05	60.00	63.06
<i>Block Group 2</i>	0.001	11.76	60.00	71.77
<i>Census Tract 145.01</i>				
<i>Block Group 2</i>	0.07	2.43	60.00	62.50
<i>Block Group 3</i>	0.03	2.37	60.00	62.40
<i>Census Tract 145.02</i>				
<i>Block Group 2</i>	0.002	2.35	60.00	62.35
<i>Block Group 3</i>	0.008	2.46	60.00	62.47
<i>Census Tract 9504</i>				
<i>Block Group 1</i>	0.02	1.97	60.00	61.98
<i>Census Tract 9505</i>				
<i>Block Group 2</i>	0.001	2.85	60.00	62.85
<i>Census Tract 9506</i>				
<i>Block Group 1</i>	0.01	4.38	60.00	64.39
<i>Census Tract 9507</i>				
<i>Block Group 1</i>	0.01	4.41	60.00	64.43
<i>Census Tract 9800.01</i>				
<i>Block Group 1</i>	0.002	13.74	60.00	73.74
<i>Census Tract 9801</i>				
<i>Block Group 1</i>	0.02	2.04	60.00	62.05
<i>Census Tract 9900</i>				
<i>Block Group 0</i>	0.001	1.02	60.00	61.02

Table 9-24 Rio Grande LNG Terminal - Vessel and Tug Boat Operational Emissions

Tier 4 Emissions for Vessels From Table H.6.7																			
Type	NOx (g/kWh)	PM10 (g/kWh)	PM2.5 (g/kWh)	CO (g/kWh)	HC (g/kWh)	SO2 (g/kWh)	CH4 (g/kWh)	Other*											
NOx (g/kWh)	1.300	1.300	0.046	0.030	0.045	0.029	0.034	0.039											
PM10 & DPM10 (g/kWh)	0.046	0.030	0.045	0.029	0.034	0.039	0.042	0.0008											
PM2.5 & DPM2.5 (g/kWh)	0.045	0.029	0.034	0.039	0.042	0.0008	2.000	1.124											
HC (g/kWh)	0.039	0.042	0.0008	2.000	1.124	0.033	0.033	0.033											
SO2 (g/kWh)	0.033	0.033	0.006	0.006	0.006	0.006	0.006	0.006											
CH4 (g/kWh)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006											
CO2 (g/kWh)	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006											
* Other 600 < kW ≤ 1000 Power Range																			
312 berthingair																			
Annual Carrier dockings (175K vessel)																			
Total Power (2 axial Tugs)																			
Total Power (2 axial Tugs)																			
Total Power (transit/port boat)																			
Total Power (transit/port boat)																			
LNG Carrier and Axial Tugs																			
312 berthingair																			
42,785 bhp																			
14,000 bhp																			
800 bhp																			
597 kW																			
597 kW																			
LNG power based on typical 177K mt DFDE LNG carrier																			
Vessel	Activity	Duration (hr)	Engines Use Qty	Ship Qty	Total Power (bhp)	Engine Rating (bhp)	Engine Rating (kW)	Natural Gas Flow (MMBtu/hr)	Activity Emissions (lb)	Annual Emissions (tpy)									
										NOx	CO	VOC	PM10	PM2.5	SO2	CH4	HC	CO2	CO2e
LNG Carrier Inboard	10 nautical miles from channel markers 2 and 3 to turning basin @ 10 knots	2.0	25%	1	42,785	42,785	10000	7976	78.1	45.7	45.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
berthing/unberthing	Maneuvering and turning	1.0	25%	1	42,785	42,785	10000	7976	78.1	45.7	45.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100% marine gas oil	Subtotal	3.0	25%	1	42,785	42,785	10000	7976	78.1	91.4	91.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LNG Carrier Outboard	10 nautical miles from channel markers 2 and 3 to turning basin @ 10 knots	2.0	25%	1	42,785	42,785	10000	7976	78.1	45.7	45.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100% marine gas oil	Maneuvering away from dock (enroute out)	1.0	25%	1	42,785	42,785	10000	7976	78.1	45.7	45.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	10 nautical miles out of Gulf of Mexico @ 10 knots	3.0	25%	1	42,785	42,785	10000	7976	78.1	91.4	91.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Two Tug Boats	4 nautical miles from channel markers 2 and 3 to turning basin @ 10 knots	2.0	80%	2	7,000	14,000	7000	10040	10440	59.8	59.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel	4 nautical miles from channel markers 2 and 3 to turning basin @ 10 knots	0.3	80%	2	7,000	14,000	7000	10440	10440	59.8	59.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100% marine gas oil	4 nautical miles from channel markers 2 and 3 to turning basin @ 10 knots	26.0	10%	4	7,000	7,000	700	522	522	23.9	46.0	0.4	1.1	0.1	0.0	0.8	15.839	4.7	7.2
Subtotal	4 nautical miles from channel markers 2 and 3 to turning basin @ 10 knots	0.3	80%	2	7,000	7,000	700	522	522	23.9	46.0	0.4	1.1	0.1	0.0	0.8	15.839	4.7	7.2
Transit/Port Boat	2 nautical miles from channel markers 2 and 3 to turning basin @ 10 knots	2.0	80%	1	800	800	800	800	800	2.7	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100% marine gas oil	Transit/Port Boat	2.0	80%	1	800	800	800	800	800	2.7	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	Transit/Port Boat	4.0	80%	1	800	800	800	800	800	5.4	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100% marine gas oil	Transit/Port Boat	3.0	80%	1	800	800	800	800	800	4.1	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	Transit/Port Boat	6.0	80%	1	800	800	800	800	800	9.5	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL										544.2	732.2	2.0	15.3	14.4	124.2	0.1	11.8	119.055	25.882

Note: All emissions factors have been derived from the EPA's "Ports Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions" April 2022, EPA-420-E-22-011.



VIA ELECTRONIC FILING

February 13, 2023

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

**Re: OEP/DG2E/Gas Branch 4
Rio Grande LNG, LLC
Docket No. CP16-454-000
Response to February 10, 2023 Environmental Information Request**

Dear Ms. Bose:

On May 5, 2016, Rio Grande LNG, LLC ("RGLNG") filed an application with the Federal Energy Regulatory Commission (the "FERC") for authorization pursuant to Section 3(a) of the Natural Gas Act (the "NGA") to site, construct, and operate a natural gas liquefaction facility and liquefied natural gas ("LNG") export terminal in Cameron County, Texas, along the north embankment of the Brownsville Ship Channel (the "Rio Grande LNG Project" or "Terminal").

On November 22, 2019, FERC issued an order authorizing the construction and operation of the Rio Grande LNG Project (the "Order"). On January 23, 2020, FERC denied requests for rehearing of the Order. On January 19, 2021, FERC denied requests for rehearing of the Order related to design changes approved on August 13, 2020. On November 17, 2021, RGLNG filed with FERC a limited amendment application to its existing NGA Section 3 authorization to incorporate carbon capture and sequestration ("CCS") systems into the approved site and design of the RGLNG Terminal ("CCS Limited Amendment Application"). This application is currently under review by FERC Staff.

On February 10, 2023, FERC Staff issued an Environmental Information Request ("EIR") intended to address deficiencies noted in the U.S. Court of Appeals for the D.C. Circuit's August 3, 2021 decision in *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321 (D.C. Cir. 2021). FERC Staff requested that a map be filed publicly on the docket depicting the Terminal and all census tract blocks within a 50-kilometer radius – including a color-coding of these blocks to indicate the potential presence of environmental justice communities based on the minority threshold, low-income threshold, or both. RGLNG hereby submits the attached figures in response to this February 10, 2023, request.

This filing is being served on each person on the official service list for this proceeding.

1000 Louisiana Street, 39th Floor
Houston, TX 77002
+1 713-574-1880
www.next-decade.com

JA786



If you have any questions, please contact Jerry Schafer at 832-426-2955.

Respectfully submitted,

/s/ Jerry Schafer

Jerry Schafer
Director, Regulatory and Permitting

Vera de Gyarfas
General Counsel and Corporate Secretary

cc: Kenneth Warn, FERC
Ghanshyam Patel, FERC
Sungki Jeong, FERC
David Wochner, Esq, K&L Gates LLP



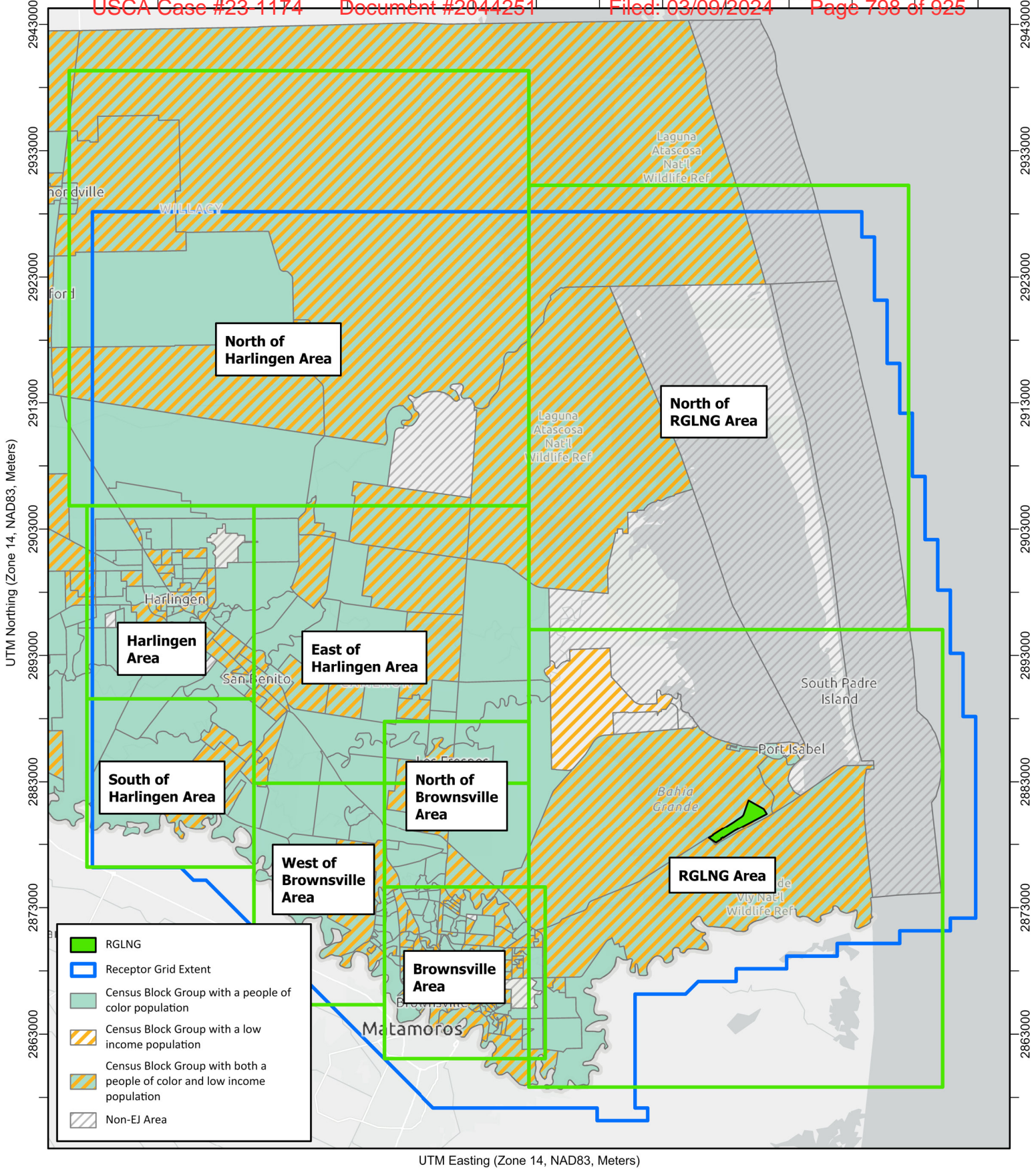
CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated this 13th day of February 2023.

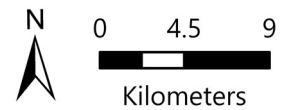
/s/ Jerry Schafer

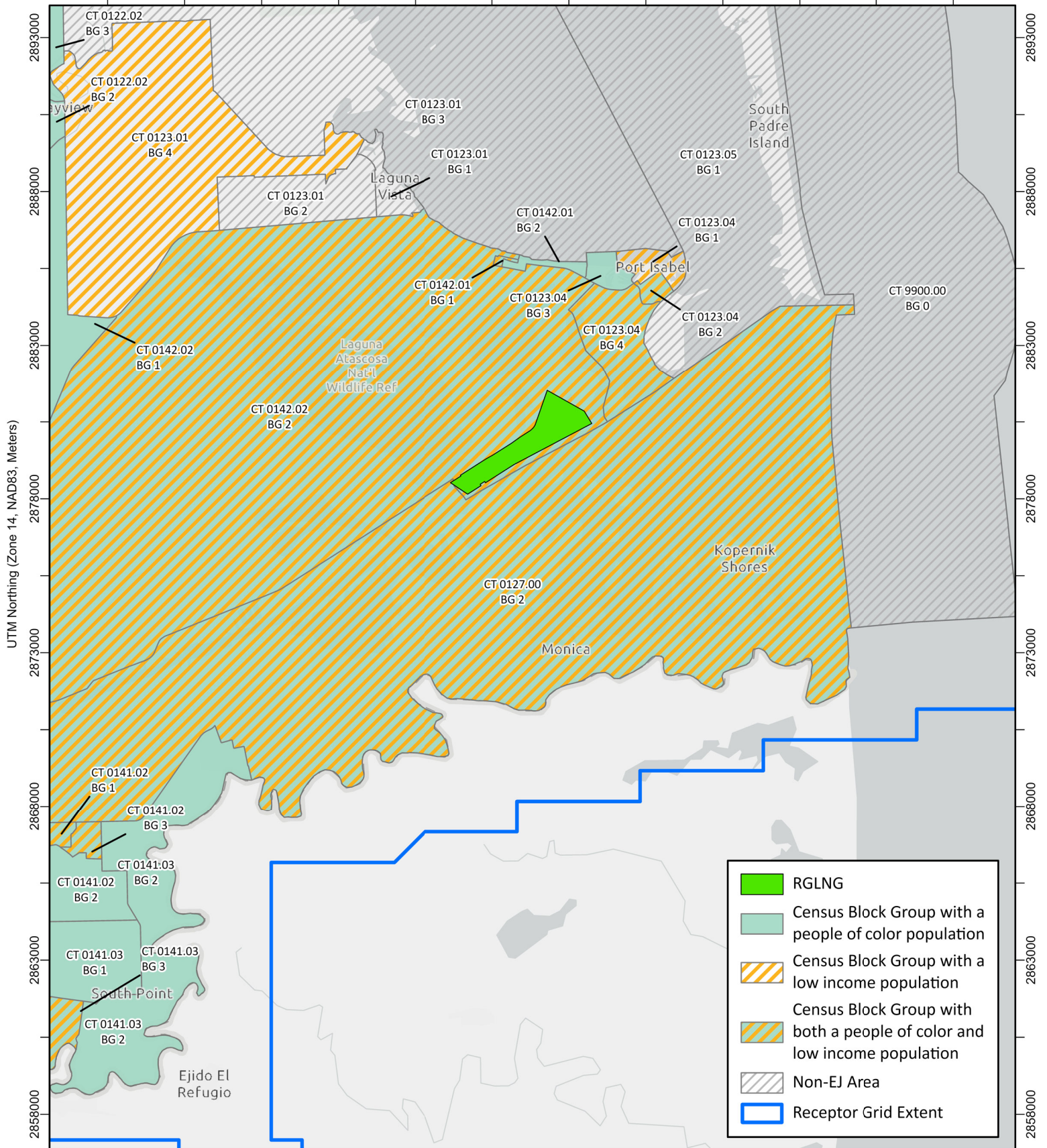
Jerry Schafer
Director, Regulatory & Permitting
NextDecade Corporation



Far-Field View of Census Blocks within 50 km of RGLNG

Rio Grande LNG LLC
 Response to FERC Environmental Information Request





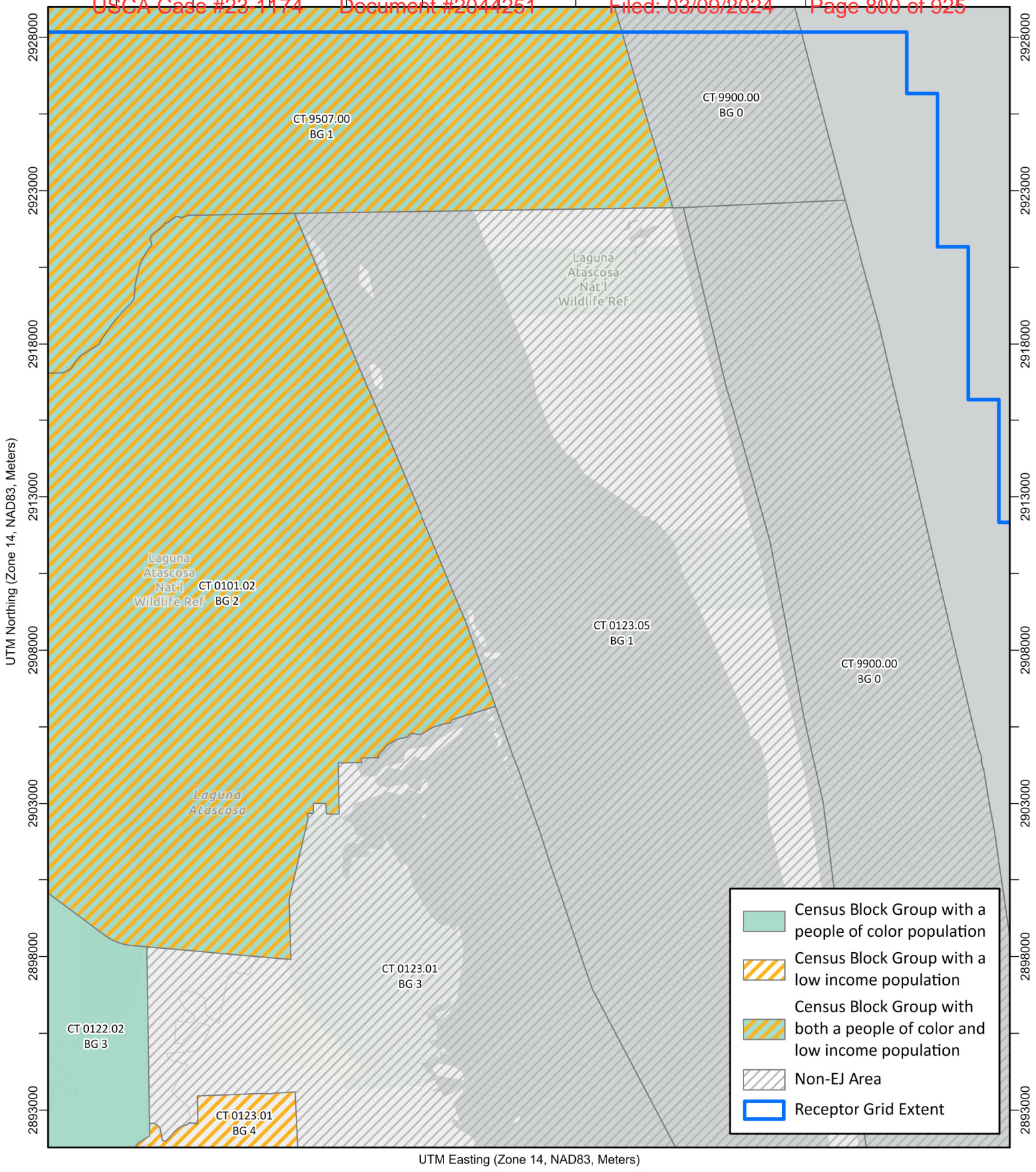
Census Blocks: RGLNG Area

Rio Grande LNG LLC
Response to FERC Environmental Information Request



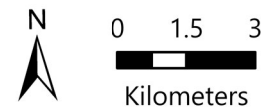
0 1.5 3
Kilometers





Census Blocks: North of RGLNG Area

Rio Grande LNG LLC
 Response to FERC Environmental Information Request



Census Blocks: Harlingen

Rio Grande LNG LLC

Response to FERC Environmental Information Request

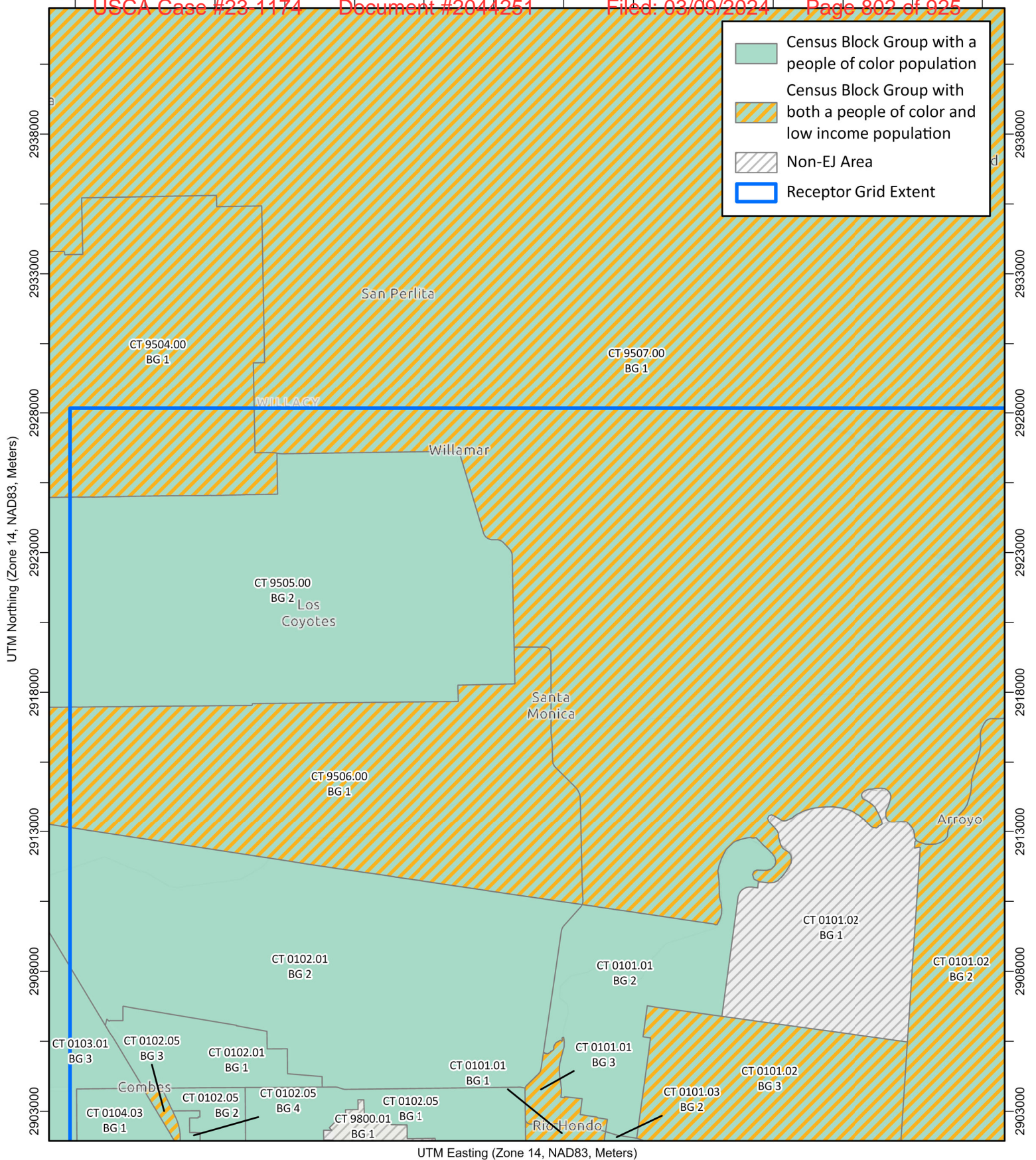


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RIO GRANDE
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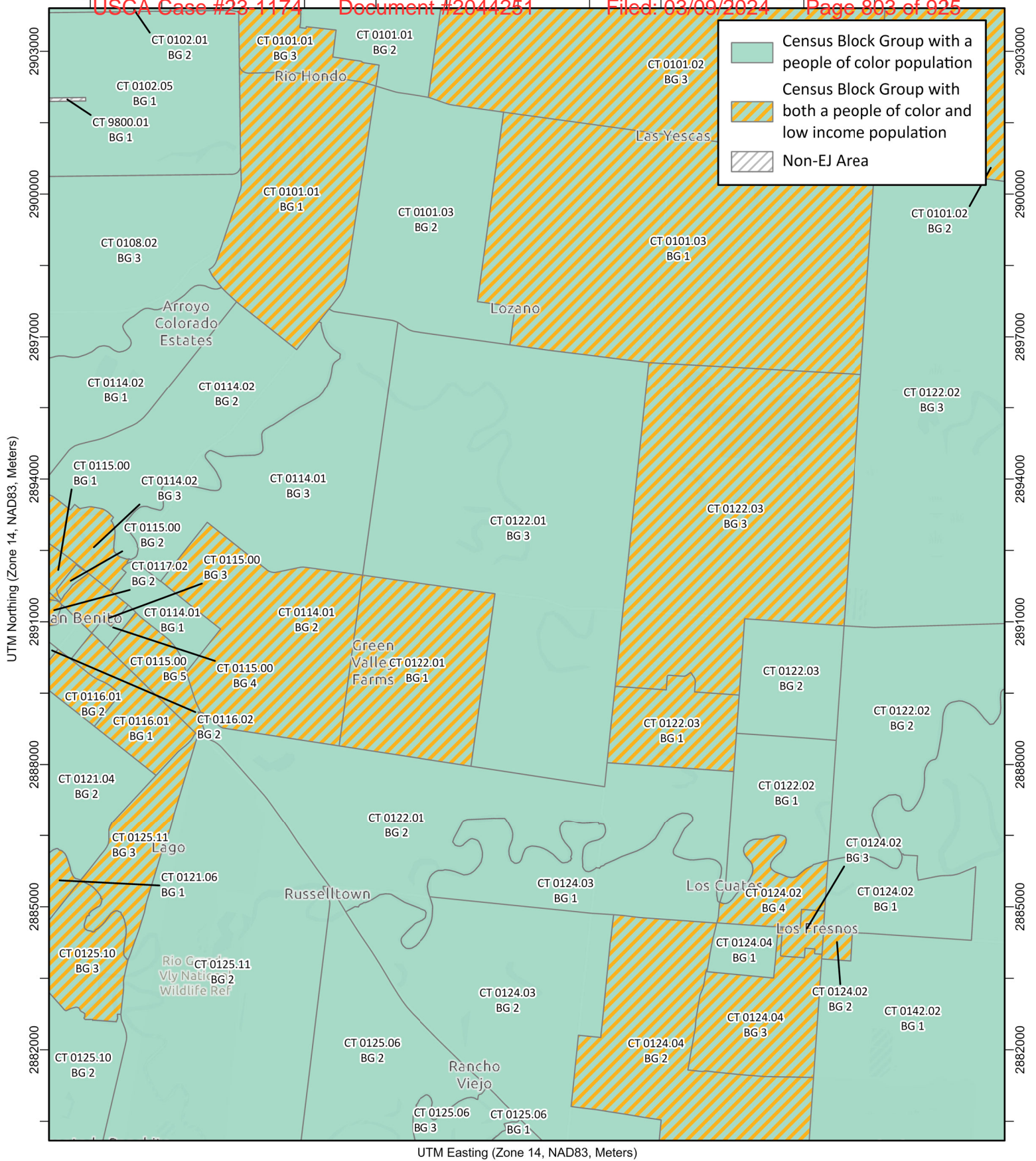
Census Blocks: North of Harlingen

Rio Grande LNG LLC
Response to FERC Environmental Information Request



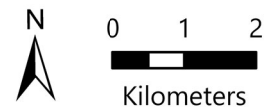
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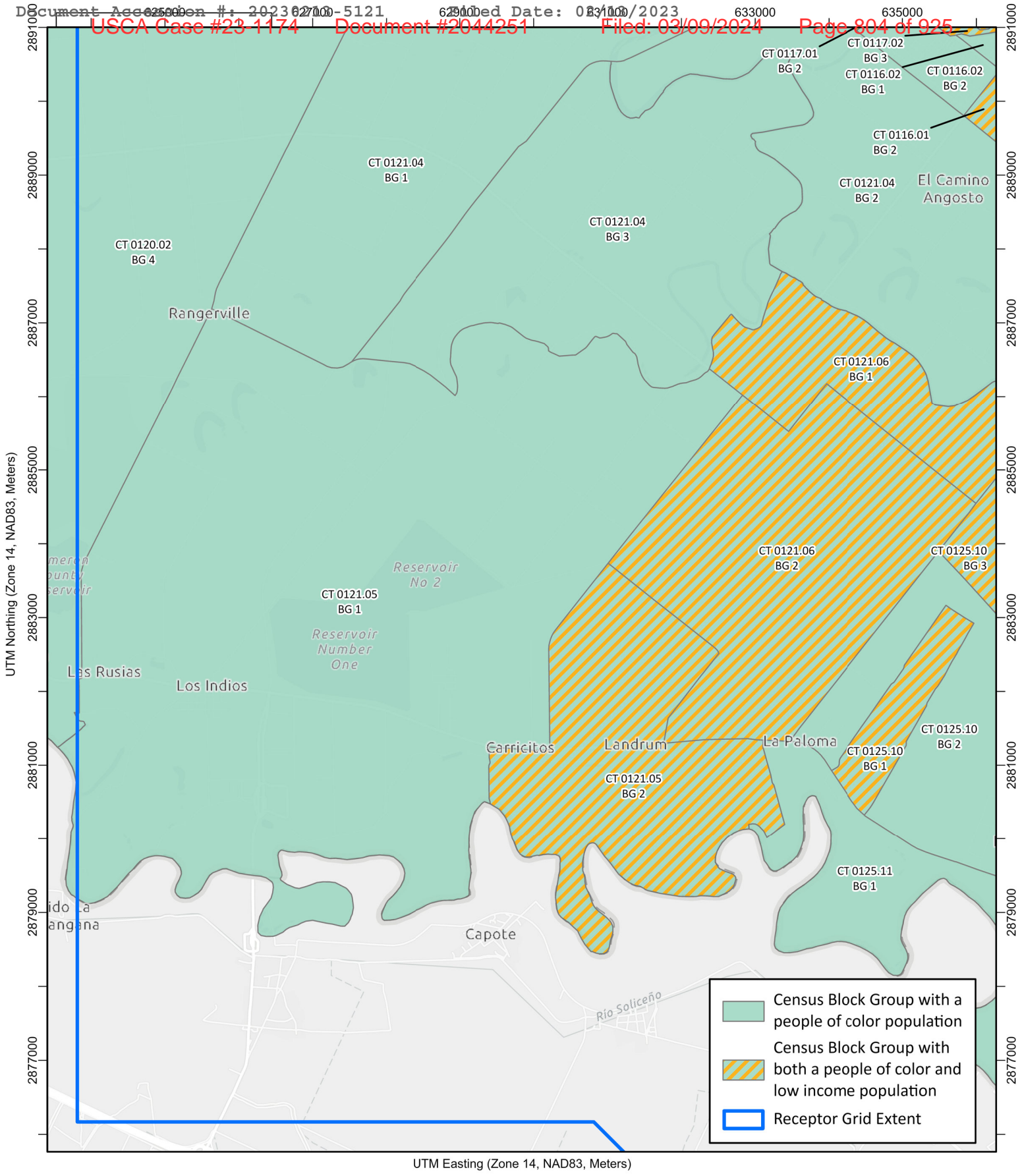




Census Blocks: East of Harlingen

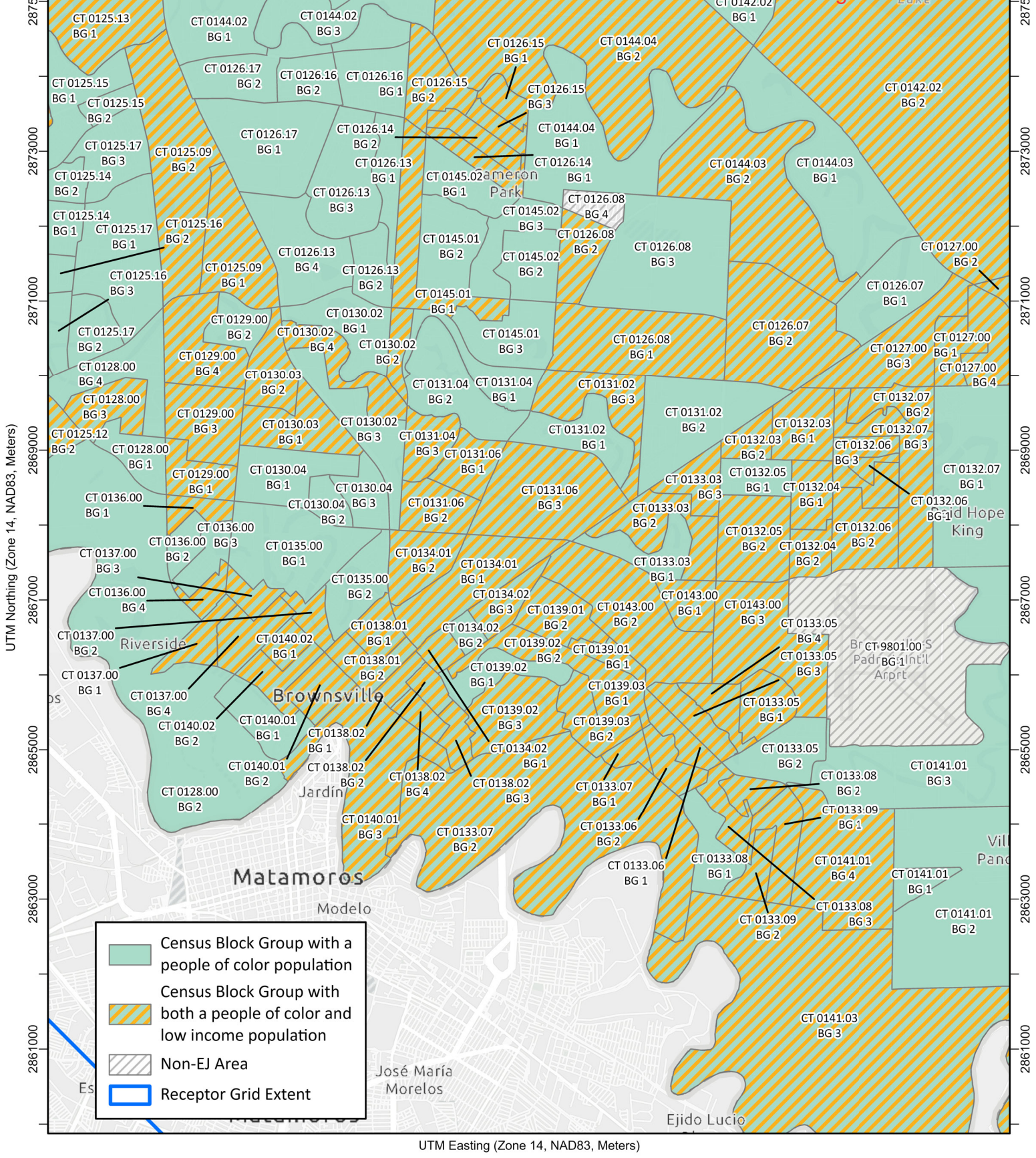
Rio Grande LNG LLC
 Response to FERC Environmental Information Request





Census Blocks: South of Harlingen

Rio Grande LNG LLC
 Response to FERC Environmental Information Request



Census Blocks: Brownsville Area



Rio Grande LNG LLC
Response to FERC Environmental Information Request

UTM Northing (Zone 14, NAD83, Meters)

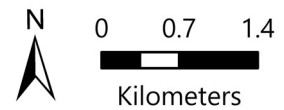
UTM Easting (Zone 14, NAD83, Meters)

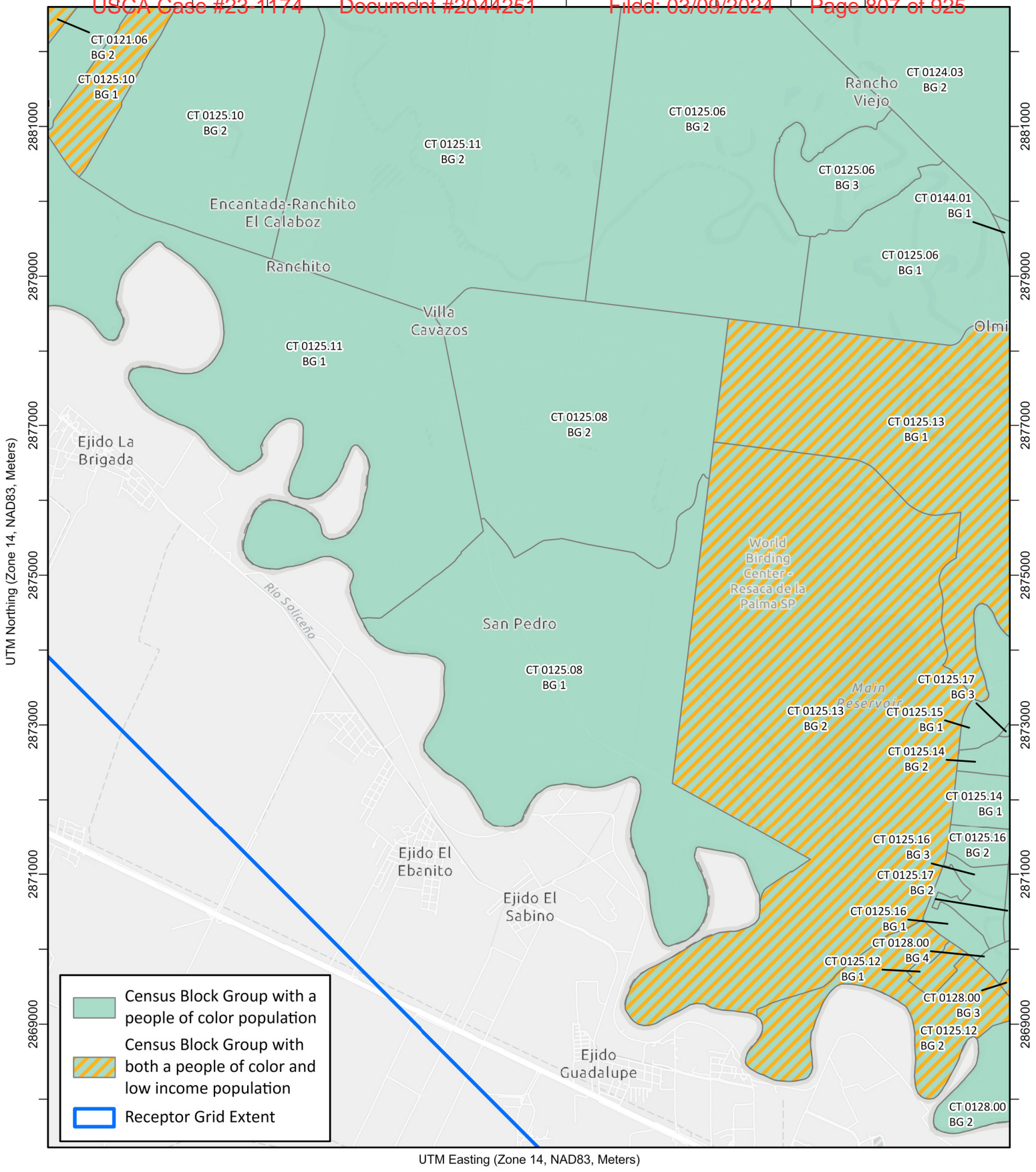
Census Block Group with a people of color population

Census Block Group with both a people of color and low income population

Census Blocks: North of Brownsville Area

Rio Grande LNG LLC
 Response to FERC Environmental Information Request





Census Blocks: West of Brownsville

Rio Grande LNG LLC
 Response to FERC Environmental Information Request

Enclosure

Rio Bravo Pipeline Company, LLC
Rio Bravo Pipeline Project (Docket No. CP16-455-000)
and
Rio Bravo Pipeline Project Amendment (Docket No. CP20-481-000)

ENVIRONMENTAL INFORMATION REQUEST

1. Provide the speciated emission rate of greenhouse gases (methane, nitrous oxide, and carbon dioxide) for construction equipment and operational equipment for the Rio Bravo Pipeline Project incorporating all modifications proposed for the Rio Bravo Pipeline Project Amendment expressed in tons per calendar year of construction and tons per year of operation for maximum operating conditions. Include supporting calculations, emission factors, fuel consumption rates, and annual hours of operation. Emission factors should be based on one of the following methodologies: U.S. Environmental Protection Agency (EPA)-certified emission standards; manufacturer data; current EPA AP-42 emission factors; or peer reviewed studies for the equipment.

UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY
FEDERAL ENERGY REGULATORY COMMISSION

IN THE MATTER OF)	
)	
Rio Grande LNG, LLC	)	Docket No. CP16-454-003
	)	CP16-454-000
Rio Bravo Pipeline Company, LLC	)	CP16-455-000
	)	CP16-455-002
	)	CP20-481-000

Request for Rehearing of Vecinos para el Bienestar de la Comunidad Costera, Sierra Club,

City of Port Isabel, and the Carrizo/Comecrudo Tribe of Texas

Vecinos para el Beienestar de la Comunidad Costera, Sierra Club, City of Port Isabel, and the Carrizo/Comecrudo Tribe of Texas request rehearing of *Rio Grande LNG, LLC*, Order on Remand and Amending Section 7 Certificate, 183 FERC ¶ 61,046, Dkt. Nos. CP16-454 *etc.* (Apr. 21, 2023).

This order purports to respond to the remand issued in *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321 (D.C. Cir. 2021) (*Vecinos*). *Vecinos* found, *inter alia*, that FERC had violated the National Environmental Policy Act (NEPA). In every other case the undersigned are aware of—including FERC’s handling of prior remands—after a court found an agency found to have violated NEPA, the agency responded by publishing new a NEPA analysis. But astonishingly, FERC has refused to do so here. This procedural shortcut itself renders FERC’s inaction invalid. Moreover, the information FERC does provide is incomplete, and demonstrates that rather than exercise its independent judgment, FERC has simply uncritically accepted the representations of the industry FERC is supposed to regulate.

Separate from the errors identified in *Vecinos*, the Rio Grande LNG and Rio Bravo

projects have drastically changed since FERC's prior approval. One example of this is the request to amend the certificate for the Rio Bravo pipeline, to allow a significant project redesign. For the reasons stated below, FERC's review of that amendment request is arbitrary. But this is not the only project design change: most notably, the developers still propose, and FERC is still considering, a proposal for carbon capture and sequestration (CCS), but FERC provides no analysis whatsoever of that proposal here. The CCS proposal is plainly a "connected action" that FERC could not ignore, and a significant new circumstance that requires supplemental NEPA analysis. FERC ignored other significant new information as well, including the safety risks posed by the nearby SpaceX facility.

In his concurrence and in other statements regarding the project, Chairman Phillips notes that it has been two years since the D.C. Circuit decided *Vecinos*. Numerous others have filed comments with FERC complaining about how long the remand has taken. But the delay is the developers' own fault. After *Vecinos* was decided, the developers substantially redesigned the facility, and then failed to respond to FERC's requests for information regarding the redesign. The developers cannot refuse to provide information FERC needs for its analysis and then complain that the analysis is taking too long. NEPA does not allow agencies to skip procedural steps or approve a project without the required hard look simply because the agency, applicant, or others have gotten impatient. If anything, as Commissioner Clements explained in her dissenting statement, FERC's decision to skip legally required steps and analysis here will further postpone the project, if it takes litigation and a court order to compel FERC to do what FERC should have done, and should have known it needed to do, in the first place.

The undersigned remain opposed to these projects. If FERC had properly solicited and considered community input, and taken a hard look at these projects, FERC would have seen that

these projects are contrary to the public interest and should be denied. FERC cannot avoid the issue by skipping steps and failing to fully grapple with these adverse impacts.

FERC should correct this error now, withdraw its approval, and refrain from making a final decision until FERC has provided the analysis and public participation opportunities the law requires.

I. Statement of Issues

Pursuant to 18 C.F.R. § 385.713(c)(1), we offer the following concise statement of alleged errors. These errors are explained in greater detail below.

- A. FERC cannot refuse to consider issues purportedly outside the scope of the remand order or amendment request. FERC has prepared a completely new analysis of air pollution impacts, with changes regarding the sources, amounts, and impacts of air pollution. Members of the public must have the opportunity to comment on and dispute this new material. And beyond the new material FERC has already considered, FERC must also consider other significant new information bearing on the projects, in light of FERC's ongoing control and authority to act on that information. 40 C.F.R. § 1502.9(d).
- B. FERC acted arbitrarily by reapproving the projects and granting the amendment without addressing Rio Grande's plans to incorporate carbon capture and sequestration ("CCS") into the terminal. This plan is both a connected action that must be considered before reapproving the terminal and pipeline, 40 C.F.R. § 1501.9(e)(1) and significant new information that requires FERC to supplement its prior NEPA analysis, 40 C.F.R. § 1502.9(d).

C. FERC's analysis of air pollution impacts on environmental justice communities is arbitrary.

1. FERC failed to explain, or even acknowledge, substantial changes to the estimates of project air emissions. NEPA requires such explanation. Moreover, FERC's failure to explain these changes indicates that FERC has uncritically accepted the applicant's submissions without exercising FERC's own independent judgment.
2. In discussing PM2.5 pollution, FERC ignored data from the air monitor closes to the terminal site. This monitor, at Isla Blanca, reports higher baseline values of PM2.5. Using these baseline values indicates that the project is likely to cause or contribute to NAAQS exceedances.
3. In discussing ozone, FERC fails to provide, cite to, or otherwise incorporate an actual analysis. FERC merely cites the applicants' statement that an ozone analysis was performed, without providing the analysis or explaining where it could be found. Moreover, FERC indicates that the ozone analysis here updates that performed in the FEIS, without recognizing that the FEIS's ozone analysis was incomplete, as FERC recognized in the prior rehearing order.
4. Insofar as FERC relied on the claim that project contributions to pollution would be below significant impact levels, it is unclear whether FERC included all foreseeable sources of pollution attributable to the projects, rather than merely considering pollution from stationary sources regulated by the Clean Air Act.

5. FERC improperly determined that impacts to environmental justice communities will be less than significant based on its conclusion that the NAAQS would not be exceeded. FERC must consider the possibility of significant or harmful impacts at air pollution levels below the NAAQS, especially as a result of cumulative exposure to multiple pollutants. *Calvert Cliffs' Coordinating Comm., Inc. v. U.S. Atomic Energy Comm'n*, 449 F.2d 1109, 1123 (D.C. Cir. 1971).
6. Rather than merely identify the proportion of low income and minority communities within 50 kilometers of the project, FERC was required to identify which communities would actually experience impacts as a result of the project, and address whether the communities that would actually be harmed were disproportionately environmental justice communities.
7. Where FERC acknowledges the potential for significant impacts, FERC cannot conclude that mitigation will avoid those impacts, where no actual mitigation plan has been developed, and where FERC has not even demonstrated that mitigation would be possible.
8. FERC violated NEPA and the natural gas act by refusing to rigorously explore the alternative of mitigating air pollution using CCS.
9. FERC could not cure the NEPA deficiencies identified in *Vecinos* without

publishing a new NEPA document, and providing the public with the opportunity to comment thereon. FERC failed to publish its updated environmental justice analysis in a supplemental EIS or other NEPA document.

10. Deficiencies in FERC's NEPA Analysis Regarding Environmental Justice Also Undermine FERC's Natural Gas Act Conclusion that the Projects Are In The Public Interest

D. FERC's analysis of the impacts of the Project's greenhouse gas emissions is arbitrary.

1. FERC's conclusion that it cannot evaluate the significance of greenhouse gas emissions was arbitrary and unsupported by evidence. The Natural Gas Act and NEPA require FERC to consider greenhouse gas emissions in FERC's public interest analysis and to determine whether greenhouse gas emissions are significant. *Sierra Club v. FERC*, 867 F.3d 1357 (D.C. Cir. 2017) ("*Sabal Trail*"). Here, FERC's claim that it lacked any viable method for doing so was arbitrary, where FERC does not dispute that the social cost of carbon is generally accepted in the scientific community, and where FERC's criticisms of that tool are unsupported. *Vecinos*, 6 F.4th 1321. In the alternative, FERC's refusal to apply its own interim climate guidance, or to otherwise make an ad hoc determination, was also arbitrary.
2. FERC violated NEPA and the Natural Gas Act by refusing to supplement its prior analyses to rigorously explore NextDecade's plan to mitigate greenhouse gas

emissions using CCS.

E. FERC's arbitrarily failed to consider new information concerning the Rio Bravo pipeline amendment application.

1. The applicants provided FERC new information about the source of the gas that will be transported.
2. After Rio Bravo submitted its amendment application, the nearby Annova project was cancelled and its planned capacity on the Valley Crossing Pipeline became available. FERC failed to consider whether Rio Bravo could use the proposed Valley Crossing Pipeline expansion to provide some of the gas for the Project, obviating the need for one of the Rio Bravo pipelines.

F. FERC arbitrarily failed to supplement its EIS based on new information concerning SpaceX.

1. On the same day FERC issued the Remand Order, SpaceX performed a test launch of the Starship Superheavy Rocket. While FERC previously assessed impacts from launches of smaller rockets, FERC did not assess impacts from this kind of rocket. The Superheavy's radius and magnitude of impacts was far outside what FERC analyzed in its FEIS. Thus, this new information about SpaceX triggers FERC's obligation to supplement its FEIS for the Project.

II. Argument

A. FERC Cannot Limit Its Analysis to The Two Issues Identified in the *Vecinos* Remand and Rio Bravo's Proposed Design Changes

Vecinos held that FERC's analysis was deficient in two ways, undermining both FERC's NEPA and Natural Gas Act analyses. First, FERC had not justified limiting its analysis of environmental justice impacts to communities within two miles of the terminal, given FERC's statements that impacts would be felt outside this radius (*e.g.*, that air quality would be impacted up to 31 miles away).¹ Second, FERC failed to address whether 40 C.F.R. § 1502.21 (formerly § 1502.22) required FERC to use methods generally accepted in the scientific community, including the social cost of carbon, to evaluate greenhouse gas emissions.²

The Remand Order states that FERC will not consider comments that do not pertain to these two issues, or to the requested Rio Bravo redesign.³ But the order itself is not so limited, nor could it be. Both the project and the environmental context have changed significantly since FERC's prior approval, and FERC cannot turn a blind eye to these changes.

For example, rather than merely redo the environmental justice analysis based on the prior analysis of air impacts, FERC requested that the applicants redo the air pollution and environmental justice analyses in their entirety. The new analysis of air pollution predicts fewer emissions from terminal operation than the FEIS predicted.⁴ The Remand Order does not explain

¹ *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321, 1325 (D.C. Cir. 2021).

² *Id.*

³ Remand Order PP87-88.

⁴ *Compare* Accession No. 20220822-5167 at Table 9-5, *with* FEIS at 4-262.

these changes. Reducing the number of liquefaction trains from six to five⁵ cannot explain the reduced emission estimate: reducing emissions from one part of the terminal by 17% cannot explain why the estimate the entire terminal's NOx emissions decreased by 46% (from 2058.6 tpy to 1112.35).⁶ FERC elsewhere asserts that updated emissions analyses "corrected 'a mathematical error in a previous calculation,'" ⁷ but FERC does not provide a source for this quote, explain what calculation contained the error (*i.e.*, the FEIS or one of the developers' post-remand submissions), what this error was, or what impact it had. It is unlikely that FERC believes that this error explains the drastic difference between the FEIS and current emission estimates, but if FERC did contend this, the contention would require explicit explanation.

Rather than merely reconsidering the scope of the environmental justice analysis, FERC now rests on applicant submissions that consider a different set of emission sources, with different emission rates, and different baseline pollution levels. We agree that it would have been improper for FERC to ignore this new information—FERC needs to consider the project that the developers actually intend to build, and the impacts the surrounding communities would actually suffer. And FERC plainly had authority to do so. Even though the remand specifically concerned FERC's prior analysis of the Project's climate and environmental justice impacts, "once FERC reacquired jurisdiction, it had the discretion to reconsider the whole of its original decision."⁸ But the public must have a meaningful opportunity to review and comment on this new information, and in particular, to raise objections, errors, or other concerns with FERC.

⁵ See Remand Order P5 n.13.

⁶ Compare FEIS at 4-262, with Accession No. 20220822-5167 at Table 9-5.

⁷ Remand Order P138 n.317.

⁸ See *Michigan Gas Co. v. FERC*, 133 F.3d 34, 38 (D.C. Cir. 1998).

Relatedly, FERC cannot turn a blind eye to other new information beyond that provided by the applicants or addressed in the Remand Order. NEPA imposes an ongoing duty to supplement analyses in the face of new information.⁹ Most obviously, FERC cannot ignore the developers' still-pending proposal to add carbon capture and sequestration to the terminal.¹⁰ In addition, new information about the SpaceX facility—including the recent severe explosion—must be considered in FERC's safety and cumulative impact analyses.¹¹

Finally, regardless of changed circumstances, FERC still must consider the environmental justice issues that were litigated but not decided in *Vecinos*, including FERC's refusal to acknowledge the potential for significant, disproportionately adverse impacts from air pollution that does not violate the National Ambient Air Quality Standards.¹²

B. FERC Cannot Re-Approve The Projects Without Considering Carbon Capture and Sequestration

NextDecade plans to build carbon capture and sequestration ("CCS") as part of the terminal. FERC recently confirmed that NextDecade's CCS proposal remains pending despite FERC's decision to pause environmental review,¹³ and CCS remains the centerpiece of

⁹ 40 C.F.R. § 1502.9. 40 C.F.R. § 1502.9. FERC also has a continuing obligation to consider changed circumstances under the Natural Gas Act. *See* 15 U.S.C. § 717o (FERC can only amend orders when it is "necessary or appropriate" to do so); *Michigan v. EPA*, 576 U.S. 743, 752 (2015) ("[A]ppropriate is the classic broad and all-encompassing term that naturally and traditionally includes consideration of all the relevant factors."

¹⁰ *Infra* § II(B).

¹¹ *Infra* § II(F).

¹² *California Public Utilities Commission v. Federal Energy Regulatory Commission*, 29 F.4th 454, 462 (9th Cir. 2022); *accord Canning v. NLRB*, 823 F.3d 76, 79 (D.C. Cir. 2016).

¹³ *See* Accession 20230518-3061.

NextDecades public and investor communications regarding the project.¹⁴

Although CCS has the potential to reduce greenhouse gases and other air pollution, it also entails harmful environmental impacts that must be considered now. Most obviously, the captured CO₂ needs to go somewhere, which will require another pipeline. NextDecade has not identified a sequestration site or a route for the pipeline, but NextDecade has indicated that the pipeline would be roughly ten miles long. Given the location of the Rio Grande terminal, it is impossible to add a pipeline connecting to any potential sequestration site without crossing wetlands or other water bodies,¹⁵ thereby increasing the project's already-significant impacts on a protected and cherished wetland ecosystem. Moreover, it appears that it would be difficult, if not impossible, to construct an additional pipeline without impacting sites culturally significant to the Carrizo/Comecrudo Tribe.¹⁶ Finally, although there are relatively few CO₂ transportation pipelines operating today, there are already signs of potential harm from accidents or rupture,¹⁷ and FERC must ensure that these safety impacts (and the cumulative safety impact of the CO₂ pipeline with additional infrastructure) are considered.

¹⁴ See <https://www.next-decade.com/rio-grande-lng/> (last visited May 22, 2023 and attached); NextDecade Corporation, Corporate Presentation (August 2022), available at <https://investors.next-decade.com/static-files/d4fb70e5-e639-4859-b2bc-a62be1cb5435> and attached.

¹⁵ See, e.g., FEIS at 4-58 (map showing wetlands at the terminal site), 4-99 (map showing nearby sensitive/managed wildlife habitats).

¹⁶ The Tribe still have not been consulted regarding the potential impacts of the Project despite numerous requests. This further underscores how inappropriate it is that FERC has issued the Remand Order without supplementing its prior NEPA analysis.

¹⁷ Dan Zegart, Huffington Post, *The Gassing of Satartia* (Aug. 25, 2021) (describing impact of a 2020 CO₂ pipeline rupture in Mississippi), available at https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline_n_60ddea9fe4b0ddef8b0ddc8f (attached) (this document was attached to Sierra Club, et al.'s Protest in CP22-17 and was, thus, already before FERC in these proceedings).

CCS would also drastically increase the terminal's water consumption and discharge. The National Energy Technology Laboratory has estimated that CCS equivalent to Rio Grande's proposal (amine absorption to capture 90% of the emissions at a combined cycle plant) increases water intake by more than 60%, and results in more than two and a half times the water discharge.¹⁸ Thus, adding CCS would likely increase operational water use by 2.5 million gallons per month.¹⁹ FERC's initial EIS for the Project does not address the impact of facility (*cf.* shipping vessel) water discharges.²⁰

Aside from these well-known concerns, CCS has other potential harmful impacts that require a hard look as well. NextDecade proposes to use amine-absorption to capture carbon dioxide, but it is unclear how much of this amine sorbent would be released during operation, or the impacts of such release. The CCS process is very energy intensive, and it is unclear whether the existing whether and how the existing terminal design can provide this energy (whether through additional on-site gas combustion, electricity, or otherwise), which is likely to be roughly 11% more than would be required without CCS.²¹ Thus, either "a much bigger power plant needs

¹⁸ NETL 2019 at 527.

¹⁹ See Final EIS, at 4-45 – 4-46 (Accession 20190426-3020).

²⁰ *Id.*

²¹ National Energy Technology Laboratory, *Cost and Performance Baseline for Fossil Fuel Energy Plants Vol. 1: Bituminous Coal and Natural Gas to Electricity*, NETL-PUB-22638, at 10 (Sept. 24, 2019) ("NETL 2019"), available at https://netl.doe.gov/projects/files/CostAndPerformanceBaselineForFossilEnergyPlantsVol1BitumCoalAndNGtoElectBBRRev4-1_092419.pdf (attached) (this document was attached to Sierra Club, et al.'s Protest in Docket CP22-17 and was, thus, already before FERC in these proceedings). The "efficiency reduction is caused primarily by the auxiliary loads of the capture system and CO₂ compression as well as the significantly increased cooling water requirement, which increases the auxiliary load of the [circulating water pumps] and the cooling tower fan." *Id.* at 528. Accord Energy Information Administration, Assumptions to the Annual Energy Outlook 2021: Electricity Market Module, at 6 (Feb. 2021) heat rate for combined cycle plants with 90%

to be built in order to achieve the same ‘net’ power generation capacity, as it would have been without CO2 capture,” or operators must accept that the facility will produce less useful output.²²

This same principle applies here, where gas turbines are used to power liquefaction equipment rather than purely for electricity generation. Less directly, the CCS proposal would increase impacts to wildlife, if for no other reason than the significant increase in vehicle traffic that construction and operation of CCS infrastructure would entail.²³

Because of these potential adverse impacts, because of CCS’s potential benefits, and because NextDecade has unequivocally stated that it plans to build CCS equipment if the Rio Grande terminal moves forward, FERC cannot reauthorize the terminal without considering CCS now. The CCS proposal is both a connected action within the meaning of 40 C.F.R. § 1501.9(e)(1) and significant new information that requires FERC to supplement its prior NEPA analysis, per 40 C.F.R. § 1502.9(d).

NEPA’s connected action requirement prohibits agencies from segmenting review of interrelated projects. “Actions are connected if they: (i) Automatically trigger other actions that may require environmental impact statements; (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously; (iii) Are interdependent parts of a larger action and

CCS roughly 12% higher than without CCS), *available at* <https://www.eia.gov/outlooks/aeo/assumptions/pdf/electricity.pdf> (attached) (this document was attached to Sierra Club, et al.’s Protest in Docket CP22-17 and was, thus, already before FERC in these proceedings).

²² IECOM 2018 at 14.

²³ See Biological Opinion, Accession 20191002-5102, at 30 (“[v]ehicle collision is the leading cause of death of ocelots in Texas; reducing road mortality is considered the single most important strategy in reducing the risk of ocelot extinction in the U.S.”); *accord* Final EIS at 5-20.

depend on the larger action for their justification.”²⁴ Here, the CCS and terminal projects are plainly interdependent. The CCS project would have no purpose, and will not proceed, without the terminal. That is enough to render the two connected. But available evidence indicates that the converse is true as well: the CCS proposal is central to NextDecade’s efforts to market itself and find the customers it would need to move the project forward, and nothing in these statements indicates that NextDecade would choose to proceed with the terminal, or be able to do so, without CCS.

In the alternative, even if the CCS proposal is not a connected action, it still compels FERC to supplement the prior NEPA analysis. The CCS proposal is both significant new information about the applicant’s actual plans *and* significant new information about what is possible. NEPA requires consideration of “alternatives” and “the environmental impacts” thereof. Where new information allows an agency to consider previously rejected or unconsidered environmentally beneficial alternatives, NEPA requires supplementation. For example, in *Alaska Wilderness Recreation and Tourism Association v. Morrison*, 67 F.3d 723 (9th Cir. 1995), the Ninth Circuit explained that where a timber sale contract that was the basis for the description of project need was cancelled, a supplemental analysis was required, because alternatives that had previously rejected became viable.²⁵ In short, the CCS proposal is “a significant development” that “provides a seriously different picture of the environmental landscape.”²⁶ Even if FERC somehow concludes that the CCS and terminal proposals are not connected actions, FERC still

²⁴ 40 C.F.R. § 1501.9(e).

²⁵ 67 F.3d 723, 728-30 (9th Cir. 1995).

²⁶ *Stand Up for California! v. U.S. Dep’t of the Interior*, 994 F.3d 616, 629 (D.C. Cir. 2021).

must supplement the terminal EIS to address NextDecade's new determination that CCS is feasible and NextDecade's plan to actually proceed with CCS. Thus, FERC violated NEPA by not supplementing its initial EIS.²⁷

C. FERC's Analysis of Environmental Justice Impacts of Air Pollution Is Arbitrary

1. FERC Has Not Explained, or Even Acknowledged, Substantial Changes in Emission Data

The Remand Order rests on new air pollution emission and modeling data submitted by the applicants. As noted above, this data reflects a different set of emission sources, rates, and background than what was considered in the FEIS.

For example, the applicants' August 2022 response estimates direct terminal NOx emissions to be 46% lower than what was predicted in the FEIS: 1112.35 tpy, down from 2058.6.²⁸ This dramatic change in emission rates cannot be explained by the only design change acknowledged in the Remand Order: omission of one of the six liquefaction trains. Clearly, the applicants contend that *something* else has changed, but FERC has not provided the public with any explanation as to what the change is.

The applicants separately claim that marine vessel NOx emission will be 91% lower than what the FEIS estimated: 84.9 tpy, down from 927.3.²⁹ By comparison, Texas LNG estimates that mobile NOx emissions associated with its Project are 110.43 tpy, exceeding those disclosed

²⁷ *Marsh v. Oregon Nat. Res. Council*, 490 U.S. 360, 372 (1989).

²⁸ Compare FEIS at 4-262, with Accession 20220822-5167, at Table 9-5. See also Accession 20230127-5156, at response 3 (reaffirming the August 2022 direct emission estimates).

²⁹ Compare Accession 20230127-5156, at Table 9-24, with FEIS 4-262.

by Rio Grande LNG.³⁰ This is despite Rio Grande LNG anticipating 238 more vessels visiting its project each year than Texas LNG.³¹ The Remand Order does not identify *any* change at all in the number, type, or behavior of marine vessels, much less a change that would explain an order-of-magnitude reduction in NOx emissions. And NOx is not the only pollutant with a new estimate: the applicants now estimate significantly lower emissions of greenhouse gases and other criteria pollutants as well, from the terminal and other associated sources.

FERC cannot rely on these new, lower emission estimates without explaining to the public what has changed and why, and without providing the public with a meaningful opportunity to comment thereon. And FERC itself cannot uncritically accept the applicants' submissions. The FEIS purportedly reflects *FERC's* estimates of likely emissions. Before accepting new estimates, FERC's technical staff must review them, pass judgment on them, and demonstrate that they have done so. As it stands, it was arbitrary for FERC to accept the new, lower emission estimates without an explanation as to why these estimates are lower than those presented in the FEIS.

2. FERC Must Consider Data Showing Higher Baseline Pollution, and Thus Increased Risk of NAAQS Exceedances.

There are two PM2.5 air monitors in Cameron County, where the terminal would be located. The applicants based their analysis on baseline data from the monitor that is farther from the terminal site, which reports lower baseline levels of PM2.5 pollution. FERC must also consider data from the closer monitor, which indicates that operation of the project may lead to

³⁰ Accession 20220502-5075, at Table B-33. Texas LNG also appears to have revised down the anticipated vessel emissions associated with its project. *Compare* Texas LNG FEIS, at Table 4.11.1-6, *with* Accession 20220502-5075, at Table B-33.

³¹ *Compare* FEIS at 4-41, *with* Texas LNG FEIS at 4-23.

exceedances of the hourly and annual PM2.5 NAAQS.

Rio Grande's analysis relied on baseline data from the AQS ID 48061006 air monitor, in Brownsville.³² This monitor is roughly 28 km from the terminal site. According to Rio Grande this monitor shows background PM2.5 levels of 9.7 and 28 $\mu\text{g}/\text{m}^3$ on annual and hourly bases, respectively, from 2019-2021.³³ When added to the PM2.5 emissions that Rio Grande modeled for these projects, Rio Grande estimated PM2.5 levels barely below the NAAQS: 0.13 and 0.67 $\mu\text{g}/\text{m}^3$ below the annual and hourly NAAQS, respectively.³⁴

The Texas Commission on Environmental Quality maintains another PM2.5 air monitor, AQS ID 480612004, in Isla Blanca.³⁵ For years 2020-2022 the Isla Blanca monitor shows an annual PM2.5 concentration of 11.2 $\mu\text{g}/\text{m}^3$ and an hourly PM2.5 concentration of 31 $\mu\text{g}/\text{m}^3$, higher than the background values indicated by the more distant Brownsville monitor.³⁶ If Rio Grande's cumulative impact analysis is modified to use these higher baseline values, the result shows potential violation of both the annual and hourly NAAQS for PM2.5:

³² Accession 20230127-5156, at Tables 3-3 and 4-2.

³³ Accession 20230127-5156, at Table 3-3.

³⁴ *Id.* at Table 4-2.

³⁵

https://www17.tceq.texas.gov/tamis/index.cfm?fuseaction=report.view_site&siteAQS=480612004

³⁶ Data from this monitor, AQS ID 480612004, was downloaded from the TCEQ website for January 1, 2020 through December 31, 2022. This data was then used to calculate the annual mean over 3 years. Data available here:

https://www17.tceq.texas.gov/tamis/index.cfm?fuseaction=report.view_site&siteAQS=480612004.

Table 1. PM _{2.5} Cumulative Impacts Analysis Using Data from Monitor AQS ID 480612004						
Avg. Period	Facility ($\mu\text{g}/\text{m}^3$)	Offsite ($\mu\text{g}/\text{m}^3$)	Model ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Total ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)
24-hour	.00054	6.33	6.33	31	37.33	35
Annual	.0071	2.16	2.17	11.2	13.37	12

When using monitor data from a monitor more closely situated to the facility site, FERC's conclusion that the total concentration of background criteria pollutants would remain under the applicable NAAQS does not hold. Crucially, this table only includes operational emissions, rather than the higher emissions considered in the Remand's discussion of cumulative operation and construction. This indicates that NAAQS exceedances may be long term, rather than limited to the temporary period in which construction and operation occur simultaneously. And it suggests that impacts may occur farther away than the 2.2 mile radius that FERC estimates for construction emissions. For instance, the EPA's report on the environment finds that PM_{2.5} can remain air borne for long periods and travel hundreds of miles.³⁷

FERC has an obligation to consider the full impacts of the decision to reauthorize the project and inform the public of those impacts.³⁸ To do so, FERC must "make use of reliable existing data and resources."³⁹ TCEQ's monitor at Isla Blanca is a reliable existing source of data

³⁷ EPA, Report on the Environment: Particulate Matter Emissions. (Available at <https://cfpub.epa.gov/roe/indicator.cfm?i=19>).

³⁸ 40 C.F.R. § 1502.1.

³⁹ 40 C.F.R. § 1502.23.

on the air quality where the project will be located. FERC has an obligation to incorporate data from this monitor into its analysis of the projects' impacts on air quality because it more accurately reflects the current true conditions of PM_{2.5} levels near the project site. Thus, it more accurately discloses what the project's impacts will be on local air quality and the health and safety of nearby residents. This is particularly true as data from Isla Blanca monitor indicates cumulative operational PM_{2.5} levels will exceed the NAAQS, whereas data from the Brownsville monitor does not.

3. FERC's Ozone Estimates Are Unexplained

In discussing ozone impacts, the Remand Order simply cites the applicant's November 2022 response.⁴⁰ That response states that an ozone analysis was performed, but it doesn't provide any information about it, or explain where to find it.⁴¹ The Remand Order states that Rio Grande updated the analysis presented in the FEIS.⁴² But the analysis presented in the FEIS was itself deeply flawed, as FERC recognized in the rehearing order, because it excluded cumulative emissions from Texas LNG and emissions from both terminals' marine vessel traffic.⁴³ Here, it is unclear whether the updated ozone modeling repeats that error. And if this modeling did include marine vessel emissions, it is unclear what estimates of vessel emissions it used – the higher emissions provided by FEIS⁴⁴ and affirmed in March 2022 modeling⁴⁵, or substantially reduced

⁴⁰ Remand Order P150 n.328.

⁴¹ *Contra* 40 C.F.R. § 1502.23 (“[Agencies] ... shall make explicit reference to the scientific and other sources relied upon for conclusions in the statement.”).

⁴² Remand Order P150.

⁴³ Accession 20200123-3129 P55.

⁴⁴ FEIS 4-262.

⁴⁵ Accession 20220303-5182 at Table 9-7 (stating “Calculations for mobile source operations

emissions included in the January modeling.⁴⁶

The fact that the Remand Order does not explain what analysis was actually performed further illustrates why an actual NEPA document, which explained FERC's analysis in one place, was required. Perhaps further explanation of the ozone analysis exists somewhere in the record, but it is not cited in the remand order, or in the document the remand order cites when discussing ozone.

4. FERC's Analysis Misuses "Significant Impact Levels"

The remand order states that the radius of air impacts from the Rio Grande LNG Terminal is 12.8 kilometers.⁴⁷ FERC justifies this determination by relying on Significant Impact Level (SIL) modeling conducted by Rio Grande LNG.⁴⁸ This modeling does not appear to incorporate all sources of criteria pollutants associated with the project, nor does FERC explain inconsistencies in the radius of impact demonstrated by other filings. It is also unclear whether FERC relied on Rio Grande's SIL modeling as any part of the basis of its conclusion that that air impacts from the Terminal's emissions are insignificant. To the extent that it did, this is a misuse of SIL modeling.

a) Significant impact levels should not be a basis for determining whether impacts from Rio Grande's emissions are significant.

As justification for using the significant impact level modeling to identify the radius of air

have not changed since the previous FERC submittal.”)

⁴⁶ *Accession* 20230127-5156, at Table 9-24. *See* discussion *supra* regarding inconsistencies in Rio Grande's reported mobile emissions associated with the Terminal.

⁴⁷ Remand Order P118.

⁴⁸ *Id.*

emissions impact from Rio Grande’s Terminal, FERC, without citation states that emissions modeled below significant impact levels “may generally be considered to be a sufficient demonstration that the proposed source will not cause or contribute to a violation of the applicable National Ambient Air Quality Standard or Prevention of Significant Deterioration increment.”⁴⁹ It is unclear whether FERC relied on the SILs modeling to determine that the project would not cause or contribute to a NAAQS violation and therefore were insignificant,⁵⁰ but to the extent that it did, that was inappropriate.

SILS are tools designed for use in the Clean Air Act’s Prevention of Significant Deterioration program, but they are contentious—and litigated—even in that context.⁵¹ Moreover, EPA has emphasized that a source *can* cause or contribute to a NAAQS violation even when the source’s emissions do not exceed significant impact levels.⁵² EPA regulations say that “a major source or major modification *will be considered* to cause or contribute to a violation of the national ambient air quality standard when such a source or modification would, at a

⁴⁹ Remand Order P118 n.269.

⁵⁰ Remand Order P151.

⁵¹ See e.g. *Sierra Club v. EPA*, 705 F.3d 458, 465-66 (D.C. Cir. 2013) (vacating EPA’s PM 2.5 SILs regulation because EPA lacks “authority to exempt sources from the requirements of the” Clean Air Act and the regulation “simply states that the demonstration required under [section] 165(a)(3) is deemed to have been made if a proposed source or modification’s air quality impact is below the SIL.”); *Sierra Club v. EPA*, 955 F.3d 56, 63-64 (D.C. Cir. 2020) (Affirming that the Court lacks jurisdiction to vacate a non-binding policy document as part of a facial challenge but explaining that “[t]he SILs Guidance is not sufficient to support a permitting decision—simply quoting the SILs Guidance is not enough to justify a permitting decision without more evidence in the record, including technical and legal documents.”).

⁵² See EPA, *Attachment 1 to Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program*, at 7 (Apr. 17, 2018).

minimum, exceed the [] significance levels...”⁵³ This means that an exceedance of the SIL unequivocally demonstrates causation of or contribution to a NAAQS violation, should one occur the area of the facility. It does not mean that a facility does not cause or contribute to a NAAQS violation if its emissions do not exceed the SIL. EPA itself recognizes that the only reason these impact levels remain legally valid is because “the regulatory text in that section did not say that a proposed source that has an impact less than the significance level is always deemed to not cause or contribute to a violation.”⁵⁴

b) Rio Grande’s SILs modeling appears only to include operational emissions at the Terminal and its articulated radius of impact is inconsistent with other filings in this docket and the Texas LNG docket.

Whatever utility or merit significant impact levels may have under the Clean Air Act, FERC’s NEPA authority and obligations are broader in scope. Notably, while the PSD program only considers stationary sources of pollution, FERC has the authority and obligation to consider all emissions foreseeably caused by the projects—including marine vessels, vehicle traffic, *etc.* If FERC is relying on significant impact levels to define either the area of impact or significance of Rio Grande’s emissions, it must include *all* emissions associated with the project in its analysis.

Here, however, the significant impact level calculation that FERC accepted in defining a 12.8 km radius of impact, and potentially in determining the significance of the Terminal’s emissions, appears to have been based solely on the Rio Grande project’s stationary source

⁵³ 40 C.F.R. § 51.165(b)(2) (emphasis added).

⁵⁴ See EPA, *Attachment 1 to Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program*, at 7 (Apr. 17, 2018).

emissions regulated by the PSD program. We say “appears” because this is another instance in which FERC has not provided any actual analysis. The Remand Order cites Rio Grande’s January 27, 2023 submission in support of this figure.⁵⁵ That filing states that “A significant impact analysis was performed,” but it doesn’t say whether or where information about it can be found in the FERC docket.⁵⁶ Rio Grande’s August 22, 2022 submission includes a table titled “Results of the Significant Impact Analysis,” but Rio Grande states that this analysis demonstrated 1-hour NO₂ increases above the significant impact level 29 kilometers away from the project, rather than the 12.8 kilometers stated in the January 2023 filing and in the Remand Order.⁵⁷ It is entirely unclear when or how Rio Grande came up with the 12.8 km figure.

Rio Grande’s assertion that NO₂ increases above the significant impact level will only extend to 12.8 kilometers is substantially less than FERC’s finding that Texas LNG’s criteria pollutants will remain above significant impact levels as far as 24 kilometers from the site.⁵⁸ This is despite Texas LNG’s much lower anticipated emissions of criteria pollutants.⁵⁹ FERC must explain how it came to the conclusion that Rio Grande’s air emission zone of impact is less than a much a smaller facility and less than previously represented by Rio Grande itself.

In any event, when the full scope of foreseeable emissions associated with the Project are considered, it appears that other criteria pollutants will increase beyond the significant impact

⁵⁵ Remand Order P118 n.270.

⁵⁶ Accession 20230127-5156, at 26.

⁵⁷ Accession 20220822-5167, at 3-4.

⁵⁸ Accession 20230421-3057, at P33.

⁵⁹ Compare Accession 20220822-5167 at Table 9-5 (Rio Grande’s Operational emissions by year) with Accession 20220502-5075 at Table B-1.

levels as well. For example, EPA has recommended a significant impact level of 1 part per billion for ozone.⁶⁰ Here, FERC predicts an ozone increase of 1.62 ppb.⁶¹ But FERC provides no discussion of which areas will experience that increase in ozone, or how far away from the terminal site ozone levels will increase by more than 1 ppb. Similarly, as shown in Table 2, it appears all other criteria pollutants associated with the project are above the EPA set significant impact levels.

Table 2. Comparison of Rio Grande's Terminal and Offsite Criteria Contributions to EPA's Significant Impact Levels				
Pollutant	Averaging Time	Model Concentrations ($\mu\text{g}/\text{m}^3$) ⁶²	Significant Impact Level ($\mu\text{g}/\text{m}^3$) ⁶³	Exceeds?
CO	8-hour	2,792	.5	Yes
	1-hour	4,304	2	
PM10	Annual	47.59	5	Yes
	24-hour			
PM2.5	Annual	2.16	1.2	Yes

⁶⁰ [https://www.epa.gov/sites/default/files/2018-](https://www.epa.gov/sites/default/files/2018-04/documents/sils_policy_guidance_document_final_signed_4-17-18.pdf)

[04/documents/sils_policy_guidance_document_final_signed_4-17-18.pdf](https://www.epa.gov/sites/default/files/2018-04/documents/sils_policy_guidance_document_final_signed_4-17-18.pdf) at 14.

⁶¹ Remand Order P150.

⁶² Remand Order, P149 at Table 1.

⁶³ 40 CFR § 51.165(b)(2).

	24-hour	6.33	.3	
SO2	3-hour	87.99	25	Yes

The majority of these modeled increases will come from “offsite contribution[s]”, rather than the terminal facility itself.⁶⁴ That might matter for purposes of the Clean Air Act, but FERC’s Natural Gas Act and NEPA responsibilities require FERC to look at *all* foreseeable air pollution caused by the projects, not merely direct emissions from stationary sources.

5. Absence of a NAAQS Violation Does Not Mean That Impacts Are Insignificant, Especially for Environmental Justice Communities

Regardless of whether Rio Grande’s cumulative impact will cause a violation of the NAAQS, there is significant evidence that there are harmful and adverse health impacts to communities exposed to increased air pollution at levels below the NAAQS. FERC’s assumption that air pollution which does not violate the NAAQS will not have health impacts and will be insignificant is mistaken.⁶⁵

The EPA has recognized that levels of PM_{2.5}, ozone, nitrogen-dioxide, and carbon monoxide below the NAAQS thresholds can result in adverse health impacts. In January of this year the EPA announced a proposal to reduce the annual PM_{2.4} NAAQS between 9.0 and 10.0 µg/m³.⁶⁶ According to the Policy Assessment for this announcement, the EPA has determined

⁶⁴ *Id.*

⁶⁵ *Id.* P151. In the instance where FERC found that NAAQS violations may be possible, concurrent construction and operation, FERC *still* determines that the impact will not be significantly adverse to EJ communities because Rio Grande LNG must submit a plan on how to address those violations at some point prior to commissioning. *Id.* P 141-43.

⁶⁶ EPA, National Ambient Air Quality Standards for PM. <https://www.epa.gov/pm-pollution/national-ambient-air-quality-standards-naaqs-pm>; EPA Press Office, EPA Proposes to

that the current PM_{2.5} NAAQS are not adequately protective of human health and that scientific evidence supporting that conclusion has been available since at least 2020.⁶⁷ The annual PM_{2.5} concentration from the air quality monitor located as Isla Blanca State Park, approximately 10 km from the Project site and 5 km away from the City of Port Isabel, is 11.2 µg/m³.⁶⁸ This is just .8 µg/m³ below the current NAAQS and more than the proposed revision of the annual NAAQS. The EPA's policy assessment indicates that nearby EJ communities are likely already suffering adverse impacts from the level of PM_{2.5} concentrations in their region. Any addition from projects like Rio Grande LNG should be considered significant no matter the quantity.⁶⁹

Additionally, the policy assessment for the EPA's 2010 Rulemaking for NO₂ NAAQS

Strengthen Air Quality Standards to Protect the Public from Harmful Effects of Soot (Jan. 6, 2023). <https://www.epa.gov/newsreleases/epa-proposes-strengthen-air-quality-standards-protect-public-harmful-effects-soot>.

⁶⁷ EPA, Policy Assessment for the Reconsideration of the National Ambient Air Quality Standards for Particulate Matter at 1-14-15 (May 2022) ("The EPA is reconsidering the December 2020 decision because the available scientific evidence and technical information indicate that the current standard may not be adequate to protect public health and welfare, as required by the Clean Air Act. We note that the 2020 [Policy Assessment] concluded that the scientific evidence and information supported revising the level of the primary annual PM_{2.5} standard to below the current level of 12.0 µg/m³."); *see also* EPA Press Office, EPA Proposes to Strengthen Air Quality Standards to Protect the Public from Harmful Effects of Soot (Jan. 6, 2023) ("EPA estimates that if finalized, a strengthened primary annual PM_{2.5} standard at a level of 9 micrograms per cubic meter, the lower end of the proposed range, would prevent: up to 4,200 premature deaths per year; 270,000 lost workdays per year; result in as much as \$43 billion in net health benefits in 2032.") (Available at <https://www.epa.gov/newsreleases/epa-proposes-strengthen-air-quality-standards-protect-public-harmful-effects-soot>.)

⁶⁸ Data from this monitor, AQI 480612004, was downloaded from the TCEQ website. This data was then used to calculate the annual mean over 3 years. Data available here: https://www17.tceq.texas.gov/tamis/index.cfm?fuseaction=report.view_site&siteAQS=480612004. As discussed further below, data from this monitor was not used by the Applicant to assess the air quality impacts of the project. Instead, it used a monitor from Brownsville, approximately 28 km away from the Project site.

⁶⁹ *See supra*. § II(C)(4).

thresholds found there was “little evidence of any effect threshold” for NO₂.⁷⁰ That same PA found evidence of adverse health effects from NO₂ exposure at levels below 53 ppb and from short term NO₂ exposure.⁷¹ This is less than the current NO₂ NAAQS threshold of 100 ppb.⁷² It is also less than the modeled cumulative impacts of the project.⁷³ Similarly, in its 2011 Rulemaking for the carbon-monoxide (CO) standards, the EPA recognized that epidemiological studies showed associations between worsened cardiovascular outcomes at levels below the current NAAQS threshold for CO.⁷⁴ The EPA also found in the 2015 rulemaking on the current ozone standard, that exposure to ozone at 60 parts per billion (ppb) could result in adverse health impacts, such as declining lung function and pulmonary inflammation, which is 10 ppb less than the current ozone standard.⁷⁵ As discussed *supra*, it is unclear whether FERC corrected its prior ozone analysis deficiencies by including mobile emissions and Texas LNG’s emissions in its updated ozone analysis. If it didn’t, this project likely contributes to ozone concentrations above 60 ppb given that the terminal’s emissions alone bring ozone contributions to 58.6 ppb.⁷⁶

These repeat findings of the EPA demonstrate that even if FERC were correct in concluding that the cumulative air impacts would not exceed the NAAQS thresholds, this would

⁷⁰ 75 Fed. Reg. 6474 at 6880 (Feb. 9, 2010) (citing Integrated Science Assessment, section 3.1.7 and 5.3.2.1).

⁷¹ *Id.*

⁷² 40 C.F.R. Pt. 50, App. S §3.2.

⁷³ The cumulative impact is 153.62 µg/m³. Remand Order, P 149. This is equivalent to 81.71 ppb.

⁷⁴ 76 Fed. Reg. 54294, 54307 (Aug. 31, 2011).

⁷⁵ NAAQS for Ozone, 80 Fed. Reg. 65292, 65303 & 65317-65318 & 65322 (Oct. 26, 2015).

⁷⁶ Remand Order P150.

not demonstrate that the cumulative air pollution would not adversely affect the health of nearby communities. *Calvert Cliffs' Coordinating Comm., Inc. v. U.S. Atomic Energy Comm'n*, 449 F.2d 1109, 1123 (D.C. Cir. 1971).

The consequences of health impacts below the NAAQS may be more acutely experienced by the EJ populations FERC has identified in the updated EJ and air impacts analysis. As EPA has explained in its guidance on evaluating environmental justice impacts in NEPA review: “Focusing the analysis [on the relevant environmental justice context] may show that potential impacts, which are not significant in the NEPA context, are particularly disproportionate or particularly severe on minority and/or low-income communities.”⁷⁷ Thus, the direct, indirect, and cumulative effects of a project may have a disproportionately severe or adverse impact on an environmental justice community even if an agency determines that the general impacts are not significant, as FERC has determined in the Remand Order. For instance, EPA recognizes that lack of access to health care is a factor which increases a community’s risk of environmental hazards.⁷⁸ In Cameron County, 30% of the Hispanic/Latino population is uninsured.⁷⁹ This is nearly twice the uninsured rate of 18% for Texas as a whole.⁸⁰ Moreover, the communities closest to the facilities do not have access to a hospital. FERC has an obligation to determine whether factors such as this and others increase the significance of the cumulative effect of emissions from multiple facilities on nearby environmental justice communities, regardless of whether ambient

⁷⁷ [EPA](#) Guidance at 3.2.2.

⁷⁸ EPA Guidance at 2.3

⁷⁹ https://data.census.gov/table?t=Health&g=040XX00US48_050XX00US48061

⁸⁰ https://data.census.gov/table?t=Health&g=040XX00US48_050XX00US48061

air quality remains below the NAAQS.⁸¹

6. FERC's Environmental Justice Analysis Does Not Identify Which Communities Will Actually Be Impacted

FERC identified a potentially impacted population of residents in census blocks groups within 50 km of the project based on EPA standards for cumulative air modeling.⁸² FERC also finds that for air impacts a less conservative radius of impact is 12.8 km based on the applicant's significant impact levels modeling.⁸³ Despite this, FERC fails to identify which census block groups, within a 50 km or 12.8 km radius, are likely to be impacted by the increased emissions from the project.

It is not enough for FERC to identify that EJ populations exist within the project's zone of impact, FERC must take the next step and identify which of those EJ populations will be most heavily impacted by constructions and operation of the project.⁸⁴ FERC is clearly aware of its obligation to conduct such an analysis. In the Remand Order's analysis of the EJ impacts from impacts to wetlands, recreational and subsistence fishing, road traffic, noise, and visual impacts, FERC identified which census block groups were most likely to feel the effects of the impacts.⁸⁵

⁸¹ See e.g. Glick Dissent to Original FERC Authorization, at 6 (“we cannot turn a blind eye to the incremental impact that increased pollution will have on economically disadvantaged communities.”)

⁸² Remand Order P118.

⁸³ *Id.* We do not believe that the significant impact levels analysis FERC refers to sufficiently includes all emissions associated with the project, nor do requesters believe that SILs are always an appropriate standard to set a radius of impact. However, since it appears FERC ultimately used a wider 50 km radius, these criticisms are unnecessary to expand on.

⁸⁴ CEQ, Guidance on Environmental Justice at 14 (“When a disproportionately high and adverse human health or environmental effect on an [EJ population] has been identified, agencies should analyze how environmental and health effects are distributed through the affected community.”).

⁸⁵ Remand Order PP120, 122, 130, 131, 152, and 161-62.

FERC did not make a similar disclosure for the census block groups that would experience the effects of increased concentrations of air emissions from the terminal. This is despite having modeled impacts of criteria pollutant emissions for all census block groups within a 50 km radius of the terminal.⁸⁶ FERC has the information necessary to identify which EJ communities are most likely to be affected by FERC's reauthorization of the project and has failed to provide that analysis to the public.

7. FERC's Reliance on a Hypothetical Future Mitigation Plan Is Arbitrary

FERC concluded that concurrent construction and operation of the Terminal may lead to exceedances of the National Ambient Air Quality Standards (NAAQS) for NO₂, PM₁₀, and PM_{2.5} on its own and cumulatively with Texas LNG.⁸⁷ Nonetheless, FERC instructed Rio Grande to come up with a plan to mitigate these impacts, and FERC concluded that the requirement to come up with a plan rendered these possible NAAQS exceedances an insignificant problem. Specifically, FERC determined that air quality impacts to environmental justice communities "would be less than significant" because of "the addition of Environmental Condition 144 in Appendix A."⁸⁸ This condition provides that Rio Grande: "shall file with the Secretary, for review and written approval ... a Project Ambient Air Quality Mitigation and Monitoring Plan for periods when construction, commissioning and start-up, and operation of the LNG terminal occur simultaneously.

⁸⁶ Accession 20230127-5156, Appendix A.

⁸⁷ *Id.* PP141, 145. As explained in more detail *infra*, FERC wrongly dismisses the significance of this new disclosure on the basis of a not-yet-written mitigation plan. *Id.*

⁸⁸ Remand Order P143.

As Commissioner Clements' dissent explains, this condition is "vague"⁸⁹ and there is no indication that it will be effective in reducing air quality impacts to environmental justice communities below the significance threshold. Thus, FERC's determination that these impacts on environmental justice communities are not significant is unsupported and arbitrary.

FERC has not even attempted to explain how this proposed mitigation measure will reduce air quality impacts to environmental justice communities below the significance level. The new condition is essentially a plan to have a plan. FERC has ordered Rio Grande to come up a monitoring and mitigation plan rather than developing such a plan.⁹⁰ Because the monitoring and mitigation plan is currently hypothetical, it is impossible to determine its effectiveness.⁹¹ And the condition is so vague as to preclude even an inference on whether the ultimate mitigation measures will work. For example, it is not clear that Rio Grande will have to include any mitigation measures to *prevent* a NAAQS exceedance rather than acting after an exceedance has occurred. It's not clear what FERC would do to ensure that NAAQS are not exceeded. The condition provides no criteria for when FERC will approve or disapprove Rio Grande's plan. It's not even clear from the text whether this is a "condition" in the ordinary sense of the term. Can construction, commissioning, or operations occur before the plan is approved by FERC? In short, FERC has not justified its finding that these impacts will not be significant on the basis of this environmental "condition."

⁸⁹ Clements Dissent P4.

⁹⁰ *Accord id.* P4 n.12.

⁹¹ *Cf. Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989) (NEPA's EIS requirement "ensures that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts.").

This is not to say that mitigation is not worthwhile. NEPA requires FERC to consider possibilities for mitigation, and the Natural Gas Act provides FERC with authority to require mitigation. And in particular, in some circumstances, NEPA permits agencies to rely on mitigation measures to determine that a given environmental effect is less than significant.⁹² But when an agency does so, it must “sufficiently demonstrate that the mitigation measures adequately address and remediate the adverse impacts so that they will not significantly affect the environment.”⁹³ Thus, agencies are required to provide “a serious and thorough evaluation” of proposed mitigation measures.⁹⁴ “[M]ere perfunctory or conclusory language will not be deemed to constitute an adequate record and cannot serve to support the agency’s” determination that an effect lacks significance.⁹⁵ Here, however, the requirement to come up with a future mitigation plan falls short of these requirements.

The problem is not just that FERC doesn’t have any facts or details with which FERC could plausibly assure *itself* that mitigation would work. The public must also have an opportunity to comment on mitigation. Approving the project now, on the basis of a mitigation plan that has not yet been developed, unlawfully deprives the public of this opportunity. FERC must provide for public comment on the mitigation plan so that the public, and especially impacted environmental justice communities, can weigh in. Absent public comment, the record is incomplete. FERC must also invite comment from the Environmental Protection Agency

⁹² *Cabinet Mountains Wilderness/Scothman’s Peak Grizzly Bears v. Peterson*, 681-82 (D.C. Cir. 1982).

⁹³ *O’Reilly v. U.S. Army Corps of Engineers*, 477 F.3d 225, 234 (5th Cir. 2007); accord *Nat’l Audubon Soc. v. Hoffman*, 132 F.3d 7, 16-17 (2d Cir. 1997).

⁹⁴ *O’Reilly*, 477 F.3d at 231 (internal quotations omitted).

⁹⁵ *Id.*

(“EPA”), the federal agency charged with administering the Clean Air Act.⁹⁶ The condition must contain mandatory and enforceable provisions that actually ensure emissions will be sufficiently reduced. On monitoring, FERC must consult with EPA to determine the appropriate amount and location of ambient air quality monitors. FERC must ensure that there are sufficient monitors to ensure that the air quality in *all* potentially impacted environmental justice communities is below the NAAQS. FERC must also consult EPA to determine appropriate monitoring at the sources of air pollution. FERC could require Rio Grande to have dedicated employees that monitor pollution on site or high definition cameras that can monitor particulate matter emissions. FERC must also ensure the mitigation plan is enforceable. FERC must make the adequate monitoring and mitigation plan part of the Project’s Certificate Order and FERC must require Rio Grande to amend its Title V air permit to include the plan as an enforceable condition in that permit. Finally, as part of the plan, FERC must determine what happens when a NAAQS exceedance occurs. FERC should require immediate cessation of activities and further mitigation measures to reduce emissions.

8. FERC Violated NEPA and the Natural Gas Act By Refusing to Rigorously Explore the Alternative of Mitigating Air Pollution Using CCS

As explained *supra* Part II.B, NextDecade’s plan to build and operate CCS as part of the Rio Grande terminal is a connected action that FERC was required to consider before reapproving the terminal itself. But in the alternative, this plan, and in particular, Rio Grande’s claim that CCS would be feasible and would reduce criteria pollutant emissions, is significant new information

⁹⁶ See 40 C.F.R. § 1501.8(a).

that required FERC to prepare a supplemental EIS.⁹⁷

As we have explained, although FERC has failed to take a hard look or provide a cohesive analysis of impacts on air pollution, including impacts on environmental justice communities, the available information indicates that the projects will have a significant and disproportionately adverse impact, including potential NAAQS exceedances, pollution increases above significant impact levels, and levels of air pollution that cause foreseeable adverse health impacts even if they do not violate Clean Air Act standards.

Given the potential, if not inevitability, of significant impacts here, new information about a feasible way to reduce these impacts is significant, and required a supplemental NEPA analysis. Supplementation is not only required where new information reveals potential additional harms (although CCS has such potential here, with regard to impacts on wetlands, cultural sites, etc.), but also when new information indicates that previously-identified harms can potentially be avoided. For example, in *Alaska Wilderness Recreation and Tourism Association v. Morrison*, 67 F.3d 723 (9th Cir. 1995), the Ninth Circuit explained that where the timber sale contract that was the basis for the description of project need was cancelled, a supplemental analysis was required, because alternatives that had previously been rejected as incapable of supplying that need were now viable. *Id.* at 728-30.

In the record here, Rio Grande asserts that CCS, if implemented, would reduce operational emissions of many criteria pollutants. Information from NETL potentially supports these assertions,⁹⁸ although the NETL analysis does not address how, for Rio Grande, the project

⁹⁷ 40 C.F.R. § 1502.9(d).

⁹⁸ NETL 2019 at 527.

would provide the extra power required for CCS, and thus the impacts thereof. This is enough, however, to trigger an obligation for FERC to rigorously explore this alternative, to find answers to the question of how much CCS would reduce criteria pollution, the extent to which those decreases matter, and the tradeoffs involved therewith. In particular, FERC must take a hard look at CCS possibilities, and consider whether it would be in the public interest to require CCS, even if Rio Grande changes its mind and abandons its stated preference for CCS and its intention to implement it. FERC has authority to require modifications of LNG infrastructure projects to better serve the public interest;⁹⁹ now that Rio Grande has identified CCS as one such possibility, FERC must consider whether to require it.

9. NEPA Required FERC to Publish Its Updated Environmental Justice Analysis in a Supplemental EIS or Other NEPA Document

FERC invited comment on some of the Applicants' responses to FERC Environmental Information Requests.¹⁰⁰ And deficiencies in the Applicants' air modeling were identified in those comments.¹⁰¹ FERC requested new information from the Applicants' in response to those comments.¹⁰² But FERC did not provide for public comment on this new information despite FERC's reliance on that information here.¹⁰³ If FERC utilized the NEPA supplementation process, public comment would have been required.¹⁰⁴

⁹⁹ 15 U.S.C. § 717b(e)(3)(A).

¹⁰⁰ See Remand Order P104 n.238.

¹⁰¹ See Accession 20221021-5070.

¹⁰² See Remand Order P137.

¹⁰³ See *id.* P151 n.330.

¹⁰⁴ 40 C.F.R. § 1503.1(a)(2)(v). To be clear, FERC allowing comment on the Applicants' responses to Environmental Information Requests does not alleviate FERC's obligation to provide its own analysis in the form of an SEIS. FERC must provide impact statements "in plain

Through its updated EJ analysis, FERC also now acknowledges that impacts on environmental justice communities will be “disproportionately high and adverse because they will be predominantly borne by environmental justice communities.”¹⁰⁵ Previously, FERC found the Terminal “would not have disproportionate adverse effects on minority and low-income residents in the area.”¹⁰⁶ This complete reversal of position triggers the need for an SEIS.¹⁰⁷ NEPA requires FERC to take a “hard look” at environmental impacts.¹⁰⁸ Under NEPA, FERC has an “obligation to consider every significant aspect of environmental impact of a proposed action.”¹⁰⁹

Additionally concerning is FERC’s conclusion that 367 new environmental justice communities may be impacted by the Project. These newly identified effected EJ populations are effectively shut out of this process as none were provided the opportunity to intervene into these dockets, protest, or request rehearing. Again, this obvious issue would have been remedied had FERC utilized the NEPA process.¹¹⁰

language” so that the public “can readily understand such statements.” *See* 40 C.F.R. § 1502.8. These statements must be based on FERC’s analysis, supporting data from relevant scientific sources. *Id.*

¹⁰⁵ Remand Order P206.

¹⁰⁶ FEIS at 4-237.

¹⁰⁷ *Native Ecosystems Council v. Tidwell*, 599 F.3d 926, 938 (9th Cir. 2010) (finding an SEIS is required where new information directly contradicts previously published NEPA documents).

¹⁰⁸ *City of Los Angeles, California v. Federal Aviation Administration*, 63 F.4th 835, 841 (9th Cir. 2023).

¹⁰⁹ *Baltimore Gas and Elec. Co. v. NRDC*, 462 U.S. 87, 97 (1983). *See also* 40 C.F.R. § 1502.8 (requiring impact statements to be based on “analysis and supporting data from natural and social sciences and the environmental design arts.”).

¹¹⁰ *See* 18 C.F.R. 380.10(a)(1)(i).

FERC's failure to engage impacted communities in its decision making process by publishing an SEIS is made more profound by its finding that the impacts of the project will disproportionately high and adverse for these environmental justice communities. The executive order mandating environmental justice reviews of agency actions specifically calls on federal agencies to conduct their programs in a manner that does not "have the effect of excluding persons (including populations) from participation" in its programs.¹¹¹ FERC itself acknowledges that Environmental Justice is "the fair treatment and meaningful involvement of all people . . . with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."¹¹² The Commission further cites the EPA in stating that "[m]eaningful involvement . . . means: (1) people have an appropriate opportunity to participate in decisions about a proposed activity that may affect their environment and/or health . . . (3) community concerns will be considered in the decision-making process; and (4) decision makers will seek out and facilitate the involvement of those potentially affected."¹¹³ In addition to its decision to forgo an environmental impact statement,¹¹⁴ FERC has also failed to meet these Environmental Justice

¹¹¹ Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations at 2-2 (Feb. 11, 1994).

¹¹² *Rio Grande Order* at P103 (citing EPA, *Learn About Environmental Justice*, <https://www.epa.gov/environmentaljustice/learn-about-environmental-justice> (Sep. 6, 2022)).

¹¹³ *Id.*

¹¹⁴ As raised by the Clements Dissent, the newly identified impacted EJ communities were not invited or even *provided* an opportunity to participate or intervene in these proceedings. There were no hearings to participate in and the communities were unaware that they should have been submitting comments. The point of the notification process is that it "provides an opportunity for property owners and residents located near a proposed pipeline to express their concerns, including any issue regarding the impact on particular segments of the community." *Horizon Pipeline Co., L.L.C. Nat. Gas Pipeline Co. of Am.*, 96 FERC ¶ 61,053, 61,153 (2001).

mandates by denying community requests for a public meeting and by failing to provide any materials in Spanish.

a) FERC Failed to Provide a Public Meeting

In their comments to responses by the Applicant to FERC's information requests, many community groups requested that FERC hold a public meeting on the Project.¹¹⁵ FERC denied these requests finding "the record is sufficient for [FERC] to address the issues identified by the court."¹¹⁶ Yet, based on this new record, FERC made significant new findings of impact and a public hearing would have provided the impacted public with the opportunity to express opposing technical or scientific view (which can be based on several sources, including the community) from agencies regarding specific impacts and/or methods of analysis," which "may warrant discussion in a NEPA document."¹¹⁷ Public meetings afford impacted EJ communities the opportunity to express whether they "may be differently affected by past, present, or reasonably foreseeable future impacts than the general population."¹¹⁸ Or, whether the effects of the Project on this population would be amplified by "past exposure histories, and social factors."¹¹⁹ The Commission is, in essence, deciding to deny itself the opportunity to be educated and to have the community "help identify the means to identify alternatives and/or mitigate the impacts."¹²⁰ By denying impacted communities' request for a public

¹¹⁵ Remand Order P84.

¹¹⁶ Remand Order P85.

¹¹⁷ Interagency Working Group on Environmental Justice & NEPA Committee, *Promising Practices for EJ Methodologies in NEPA Reviews*, 30 (2016) [*hereinafter* "Promising Practices"].

¹¹⁸ *Id.*

¹¹⁹ *Id.* at 31.

¹²⁰ EPA 1998 Guidance at pdf 54.

meeting, FERC has systemically excluded them from the Commission's decisionmaking.

b) FERC Failed to Provide Information in Spanish

In addition, FERC declined to provide any written materials in Spanish.¹²¹ As FERC recognized, the majority of impacted census block groups are majority Hispanic/Latino.¹²² Many of these communities have limited English proficiency and require translations in order to fully evaluate the impacts of FERC's decisions. For instance, in Port Isabel, the closest city to the Project, a majority of the population speaks Spanish at home and 27.1% speak English less than very well.¹²³ Similarly in Cameron County, 70% of the residents speak Spanish at home and 33.5% of the Spanish speaking population speaks English less than very well.¹²⁴ Even faced with this demographic information,¹²⁵ the Commission has again refused to provide translated documents, effectively excluding a significant portion of the impacted populations from participating in the decisionmaking process contra to mandates by EJ guidance.¹²⁶ This exclusion

¹²¹ Remand Order P85.

¹²² Remand Order P111, 119.

¹²³ U.S. Census Bureau, American Community Surveys: S1601: Language Spoken at Home, Port Isabel, *available at* <https://data.census.gov/table?q=Port+Isabel+city;+Texas,+language&tid=ACST5Y2021.S1601> (last viewed May 7, 2023).

¹²⁴ U.S. Census Bureau, American Community Surveys: S1601: Language Spoken at Home, Cameron County, *available at* <https://data.census.gov/table?q=language+spoken+at+home&g=050XX00US48061>

¹²⁵ This issue was previously raised by commenters. *See* Rebekah Hinojosa August 27, 2020 Comment.

¹²⁶ CEQ Guidance on EJ at 16 (“Agencies should also consider translating documents into languages other than English where appropriate and practical.”); *Promising Practices* at 10 (“Consistent with applicable requirements, agencies should prepare NEPA documents in plain, clear language and provide multiple forms of communication (e.g. written, oral, pictorial) to accommodate varied levels of reading proficiency, to facilitate meaningful engagement, and to

also ignores multiple long-standing executive orders focused on language access and environmental justice.¹²⁷ The inability to effectively participate in FERC's proceedings only amplifies the disproportionately high and adverse impacts of this Project on EJ communities.¹²⁸

10. Deficiencies in FERC's NEPA Analysis Regarding Environmental Justice Also Undermine FERC's Natural Gas Act Conclusion that the Projects Are In The Public Interest

FERC's obligation to consider and disclose impacts to environmental justice communities does not end with NEPA. FERC must also consider these impacts under the Natural Gas Act and issue a certificate "only if a project's public benefits (such as meeting unserved market demand) outweigh its adverse effects (such as a deleterious environmental impact on the surrounding community)."¹²⁹ Yet, FERC does not even attempt to grapple with how approving a new LNG

account for limited English proficiency.")

¹²⁷ For example, EO 13166 issued more than 20 years ago required that each agency develop a language access plan which "shall include the steps the agency will take to ensure that eligible LEP persons can meaningfully access the agency's programs and activities." Exec. Order 13,166, *Improving Access to Services for Persons with Limited English Proficiency* (Aug. 16, 2000). The mandate of that EO was re-emphasized in a memorandum last fall which stated "[a]ll people in this country, regardless of the language they speak, deserve meaningful access to programs and activities that are conducted or supported by federal agencies."¹²⁷ *Memorandum For Heads of Fed. Agencies, Heads of Civil Rts. Off., and Gen. Counsels: Strengthening the Fed. Gov't's Commitment to Language Access*, DEP'T OF JUSTICE (Nov. 21, 2022). In addition, Executive Order 14096 specifically addresses the Environmental Justice concerns presented by failing to provide public information in languages other than English. It states that "Government must continue to remove barriers to the meaningful involvement of the public in such decision-making, particularly those barriers that affect members of communities with environmental justice concerns, including those related to disability, language access, and lack of resources." Exec. Order 14,096, *Revitalizing Our Nation's Commitment to Environmental Justice for All* (April 26, 2023) ("environmental justice can successfully occur only through meaningful engagement and collaboration with underserved and overburdened communities to address the adverse conditions they experience and ensure they do not face additional disproportionate burdens or underinvestment.").

¹²⁸ See *Promising Practices*, 43.

¹²⁹ *City of Oberlin, Ohio v. FERC*, 937 F.3d 599, 602 (D.C. Cir. 2019) ("*City of Oberlin*")

terminal which will have “disproportionately high and adverse” impacts on EJ communities and whose impacts will be “predominately [borne]” by EJ communities is in the public interest.¹³⁰

There is a long history of siting industrial facilities in black, brown, and poor communities in the United States.¹³¹ The very purpose of requiring environmental justice reviews is to try and correct this long-standing practice.¹³² The growing development of natural gas infrastructure is already creating disparity in which populations are subject to the emissions and degradation of the natural environment caused by this industry.¹³³ FERC’s authorization of the Rio Grande project is a continuation of practices by federal and state agencies of creating sacrifice zones in low-income black, brown, and poor communities. FERC unequivocally recognizes that EJ communities will once again be asked to bear the burden of environmental harm for “the greater public good” and chose to completely disregard that perpetuating racist siting of industrial polluters is not in the

(citations omitted).

¹³⁰ Remand Order P207.

¹³¹ See Donaghy, Timothy et. al., *Fossil Fuel Racism in the United States: How Phasing Out Coal, Oil, and Gas Can Protect Communities*, Energy Research & Social Science V. 100 (June 2023).

¹³² See Memorandum for the heads of all departments and agencies: executive order on federal actions to address environmental justice in populations and low-income populations (Feb. 11, 1994) (available at https://www.epa.gov/sites/default/files/2015-02/documents/clinton_memo_12898.pdf) (EO 12898 “is designed to focus Federal attention on the environmental and human health conditions in minority communities and low-income communities with the goal of achieving environmental justice. That order is also intended to promote non-discrimination in Federal programs substantially affecting human health and the environment...”).

¹³³ Donaghy, et at. § 5.2 (“With the shale boom, the U.S. has seen a rapid build-out of oil and gas pipelines, as well as liquified natural gas (LNG) and crude export terminals, which has had the effect of converging significant volumes of oil and gas into regions that are already experiencing environmental justice burdens. These include “Cancer Alley”, Corpus Christi, Houston [175], Port Arthur, and other Gulf South communities.”)

public interest.

D. FERC's Analysis of Greenhouse Gas Emissions Is Arbitrary

In reauthorizing the terminal and pipeline, and in approving the pipeline amendment, FERC failed to reasonably respond to the *Vecinos* remand regarding greenhouse gases, and FERC further acted arbitrarily by ignoring the pending proposal to add CCS to the terminal (whether CCS is viewed as a connected action, significant new information, or both).

1. FERC's Claim that It Cannot Evaluate the Significance of Greenhouse Gas Emissions Is Arbitrary and Unsupported

As the D.C. Circuit affirmed in *Sierra Club v. FERC*, 867 F.3d 1357, 1376 (D.C. Cir. 2017) (“*Sabal Trail*”), the Natural Gas Act provides FERC with the authority and obligation to consider greenhouse gas emissions in making its public interest determinations. NEPA therefore requires FERC to inform those determinations with a hard look at, *inter alia*, the significance and impact of greenhouse gas emissions. *Id.*; accord *Vecinos*, 6 F.4th at 1331.

Here, FERC estimates operation of the Rio Grande LNG terminal will emit about 6,451,324 tons per year of carbon dioxide equivalent (excluding the proposal to implement carbon capture and sequestration).¹³⁴ And operation of the Rio Bravo pipeline result in about 761,655 tons per year of CO₂e.¹³⁵ But FERC refused to provide any analysis of the significance of these emissions, claiming it was impossible to do so. FERC's reasons for rejecting the social cost of carbon or other methods for weighing these impacts were arbitrary. And FERC violated the Natural Gas Act by failing to factor these emissions into FERC's public interest analysis. If

¹³⁴ *Id.* P96.

¹³⁵ *Id.* P97.

FERC's conclusions will not change no matter how many tons of greenhouse gases are emitted, or no matter what level of impact those emissions have, then greenhouse gas emissions do not actually play any role in FERC's decisionmaking. But the Natural Gas Act and NEPA do not permit FERC to ignore this issue.

a) FERC's Refusal to Use Social Cost Remains Arbitrary Where FERC Also Fails to Provide Any Alternative Analysis

As *Vecinos* explained, NEPA and the Natural Gas Act do not permit FERC to throw up its hands, or to hold out for a perfect methodology. Where, as here, FERC claims that it is missing information relevant to reasonably foreseeable adverse impacts, NEPA requires FERC to, *inter alia*, evaluate impacts “based upon theoretical approaches or research methods generally accepted in the scientific community.” *Id.* at 1328 (quoting 40 C.F.R. § 1502.21(c)(4)); *accord Mont. Wilderness Ass’n v. McAllister*, 666 F.3d 549, 559 (9th Cir. 2011) (when confronted with a difficult problem, “the proper response to that problem is for [the agency] to do the best it can with the data it has, not to ignore the [issue] completely.”). Thus, the issue isn’t whether *FERC* thinks the tool is acceptable, but whether the broader scientific community does. *Vecinos*, 6 F.4th at 1329.

Here, FERC does not dispute that the social cost of carbon protocol is “generally accepted in the scientific community,” nor could it. FERC has previously admitted the same. *Fla. Se. Connection, LLC Transcon. Gas Pipe Line Co., LLC Sabal Trail Transmission, LLC*, 164 FERC ¶ 61,099, P10 (2018). And here, FERC calculated the social cost of the projects’ emissions (excluding upstream and downstream emissions associated with gas production and use), using the range of discount rates recommended by the Interagency Working Group. Remand Order PP98-99. But FERC refused to use these estimates to make a determination of whether the

pipeline's foreseeable greenhouse gas emissions were significant or, apparently, to factor these estimates into FERC's evaluation of whether the project's benefits outweighed its harms. Remand Order PP93, 100. Instead, FERC stated it that it was providing these estimates for "informational purposes," *id.* P94, but not, apparently, to inform FERC's own decisionmaking.

The reasons FERC gives here for refusing to consider social cost in FERC's own decisionmaking are arbitrary. FERC repeats its argument that social cost of carbon may be appropriate for "rulemaking," but FERC asserts that it is unsuitable for project-level NEPA review. Remand Order P93. FERC provides no explanation as to why the impact of two million tons of greenhouse gases emitted by an individual project differs from the impact of two million tons emitted as a result of a regulation. Elsewhere, FERC has asserted that in rulemaking, the choice of discount rate is less important, because the same discount rate can be consistently applied throughout a cost-benefit analysis.¹³⁶ But FERC is simply mistaken in suggesting that uniform application of a discount rate means that the choice of which rate to use is less important. *Nat. Res. Def. Council, Inc. v. Herrington*, 768 F.2d 1355, 1414 (D.C. Cir. 1985) (in reviewing energy efficiency standards, choice between 5%, 7%, or 10% discount rate "substantially" changed conclusion of regulations' benefits). More broadly, FERC has never provided any non-arbitrary explanation as to *why* or *how* project-level proceedings differ from rulemakings in ways that make social cost of carbon appropriate for the latter but not the former. And while CEQ is working "to review, revise, and update its 2016" GHG guidance, CEQ has encouraged agencies to

¹³⁶ *But see Mountain Valley Pipeline, LLC Equitrans, L.P.*, 163 FERC ¶ 61,197 P281 n.772 (2018) (recognizing that BOEM, OSM, DOE, and numerous state agencies have used social cost of carbon in environmental review of individual projects). In that order, FERC suggested that greenhouse gas emissions were primarily a problem for agencies that regulate production or use of fossil fuels. But the direct emissions at issue here are exactly that: emissions that result from use of fossil fuels in a FERC-jurisdictional project.

comply with the 2016 guidance pending revision.¹³⁷ The 2016 GHG Guidance identifies social cost of carbon as “a harmonized, interagency metric that can give decision makers and the public useful information *for their NEPA review*.”¹³⁸ FERC has not identified any CEQ statement stating that social cost of GHGs is, or may be, inappropriate for project-specific review.

FERC’s only other criticism of the social cost of carbon here is that “there are no criteria to identify what monetized values are significant for NEPA purposes, and we are currently unable to identify any such appropriate criteria.” Remand Order P93. But there are few, if any, bright-line criteria for determining significance for *any* types of environmental impacts, and NEPA requires agencies to make informed judgments on these impacts as well. *See Mont. Wilderness Ass’n*, 666 F.3d at 559. And although it may be hard to know whether certain monetized costs are worth worrying about in other cases, here, where FERC estimates social cost of greenhouse gases directly emitted as a result of the Rio Grande LNG and Rio Bravo projects at \$6.6 *billion* in the center case, Remand Order PP98-99, these emissions are plainly not something that can be shrugged off or assumed not to weigh in the public interest calculus.

FERC misleadingly argues that it is justified in refusing to use the social cost of carbon in its own decisionmaking because courts have affirmed FERC’s rejection of the tool in the past. Remand Order P93. As *Vecinos* explained, prior decisions did not consider FERC’s obligations under 40 C.F.R. § 1502.21 (or its prior codification at 40 C.F.R. § 1502.22 (2019)). *Vecinos*, 6 F.4th at 1329 (distinguishing *EarthReports, Inc. v. FERC*, 828 F.3d 949, 956 (D.C. Cir. 2016)); *see Delaware Riverkeeper Network v. FERC*, 45 F.4th 104, 112 (D.C. Cir. 2022) (holding that

¹³⁷ See Accession No. 20210527-5009.

¹³⁸ https://ceq.doe.gov/docs/ceq-regulations-and-guidance/nepa_final_ghg_guidance.pdf at 33 n.86.

petitioners there had failed to exhaust the argument that prevailed in *Vecinos*). The law is clear: where FERC refuses to analyze the significance of greenhouse gases with any other method, and where FERC fails to provide a rational explanation as to why the social cost of greenhouse gases is not a generally accepted as a suitable tool for this task, then FERC must use that tool here.

b) Alternatively, FERC Could Apply Its Draft Greenhouse Gas Guidance

The Remand Order also represents an about-face from FERC's 2022 practice. Instead of applying the social cost of carbon, last year, FERC published a proposed policy statement on Consideration of Greenhouse Gas Emissions in Natural Gas Infrastructure Project Reviews, 178 FERC ¶ 61,108. That interim, now draft, policy identified a different way to evaluate the significance of project greenhouse gas emissions: a simple 100,000 tons per year threshold. *Id.* P79. For projects exceeding this threshold, FERC would not categorically rule that greenhouse gas emissions rendered the project contrary to the public interest, but these "significant" emissions would need to be factored into FERC's public interest analysis. Notably, for pipelines approved under section 7 of the Natural Gas Act, the policy asks whether all foreseeable lifecycle emissions would exceed this threshold. *Id.* In orders issued after publication of this draft, FERC did not dispute that it was possible to evaluate the significance of greenhouse gas emissions, but FERC stated that it would not do so until this policy was finalized.

Although, as FERC notes here, this draft policy has been "suspended," Remand Order P101, that does not mean that FERC could not use the same principles articulated therein to make an ad-hoc determination for this project. Such an ad hoc evaluation might not be ideal, but the law does not permit FERC to refuse to consider issues simply because FERC would prefer to figure out a way to do so later. Even the *direct* operational emissions here, exceed 7 million tons of

carbon dioxide equivalent per year,¹³⁹ more than seventy times greater than the significance threshold for *lifecycle* emissions proposed in the interim, now draft, policy. While FERC is considering how to use this proposal in general, or while considering an alternate proposal, that does not justify refusing to make the decisions required by NEPA and the Natural Gas Act here. FERC can choose how it approaches this problem—FERC can make a case-specific significance determination here, or FERC can wait until it is comfortable applying the general policy and *then* do so here—but FERC can’t approve now and analyze (for other projects) later.

c) Comparisons with State and National Emission Totals Would Not a Substitute for Determining Significance

Finally, FERC cannot meet its NEPA and Natural Gas Act obligations simply by comparing direct project emissions with emissions of the United States or Texas as a whole.. Observing that emissions here are a small portion of regional or national totals does not illustrate their impact. *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217 (9th Cir. 2008). Even a “very small portion” of a “gargantuan source of ... pollution” may “constitute[] a gargantuan source of ... pollution on its own terms.” *Sw. Elec. Power Co. v. EPA*, 920 F.3d 999, 1032 (5th Cir. 2019).

2. FERC Violated NEPA and the Natural Gas Act By Refusing to Rigorously Explore the Alternative of Mitigating Greenhouse Gas Emissions Using CCS

As explained *supra* parts II.B and II.C.8, NEPA and the Natural Gas Act also required FERC to take a hard look at the proposal to add CCS to the Rio Grande terminal. FERC must evaluate NextDecade’s plans to do so, and FERC itself must rigorously explore whether to require

¹³⁹ Remand Order PP96-97.

CCS, pursuant to FERC's authority under 15 U.S.C. § 717b(e)(3)(A).

The primary purpose of CCS is, of course, to reduce greenhouse gas emissions. If CCS performs as Rio Grande asserts that it will, it would avoid billions of dollars in climate harm annually. While this is a small fraction of the total climate harm the exports would cause (because the direct emissions constitute only a small fraction of total lifecycle emissions), the potential to avoid billions of dollars of harm is, plainly, an important part of the problem. Because new information about Rio Grande's plans and its determination regarding the feasibility of CCS demonstrates that an alternative not previously considered is now feasible (and actually planned), NEPA required FERC to supplement the prior EIS. FERC's decision to reauthorize the projects without NEPA analysis of this alternative, or without considering whether to require it pursuant to FERC's Natural Gas Act authority, was arbitrary.

E. The Rio Bravo Amendment

1. FERC Must Supplement the NEPA Analysis for the Pipeline to Account for New Information about Upstream Effects

While FERC has quantified the impacts of the Project's direct greenhouse emissions, *i.e.* the greenhouse gas emissions from the project infrastructure itself, FERC has not considered greenhouse gas emissions outside the Project's direct emissions. This means that FERC has failed to consider the vast majority of emissions associated with the Project. The Department of Energy has estimated that liquefaction accounts for only 6% of the lifecycle greenhouse gas emissions of U.S. LNG exports.¹⁴⁰ And this estimate overestimates liquefaction's share, because DOE

¹⁴⁰ National Energy Technology Laboratory, Life Cycle Greenhouse Gas Perspective on Exporting Liquefied natural Gas from the United States: 2019 Update, at 23 (Sept. 12, 2019), *available at* <https://www.energy.gov/sites/prod/files/2019/09/f66/2019%20NETL%20LCA-GHG%20Report.pdf>.

underestimates non-liquefaction emissions.¹⁴¹ Here, in Docket CP22-17, Rio Grande explains that it will liquefy gas produced “in the Permian Basin and Eagle Ford Shale.”¹⁴² Recent research demonstrates that Permian Basin gas production emits far more methane than assumed in DOE’s analysis.¹⁴³

When assessing a project’s environmental impacts, FERC is required to consider indirect effects. *See* 40 C.F.R. § 1508.1(g)(2). This means that FERC has to assess effects that are “reasonably foreseeable” provided “they are sufficiently likely to occur such that a person of ordinary prudence would take them into account in reaching a decision.”¹⁴⁴ Where FERC has sufficient information to determine the source of natural gas that will eventually be liquefied for export, it must assess the impacts of greenhouse gas emissions from the source.¹⁴⁵

Because Rio Grande acknowledged that it would be sourcing feedgas from the Permian Basin and the Eagle Ford Shale, FERC has enough information to analyze the upstream impacts associated with the Project. Additionally, FERC has a sufficient scientific basis for assessing these impacts.¹⁴⁶ As above, this is significant new information. And because Rio Grande’s information on the source of the gas post-dates FERC’s EIS, FERC has not yet performed this necessary

¹⁴¹ *See* Sierra Club, Comment on Life Cycle Update, at 6-9 (Oct. 21, 2019), *available at* <https://fossil.energy.gov/app/DocketIndex/docket/DownloadFile/604>.

¹⁴² Rio Grande, Application in CP22-17, at 9 (Accession 20211117-5060).

¹⁴³ *E.g.*, Yuzhong Zhang *et al.*, *Quantifying methane emissions from the largest oil-producing basin in the United States from space*, Science Advances (Apr. 22, 2020), DOI: 10.1126/sciadv.aaz5120 (estimating a methane “leak rate” in the Permian of 3.5 to 3.7%), *available at* <https://advances.sciencemag.org/content/6/17/eaaz5120/tab-pdf>.

¹⁴⁴ *Sabal Trail*, 867 F.3d at 1371 (quoting *EarthReports, Inc. v. FERC*, 828 F.3d 949, 955 (D.C. Cir. 2016) (internal quotations omitted).

¹⁴⁵ *Sierra Club v. FERC*, 827 F.3d 36, 47 (D.C. Cir. 2016) (“*Freeport*”).

¹⁴⁶ *See supra* notes 137 and 138.

analysis and FERC must supplement to do so. At the very least FERC must assess this new information and determine its significance.

2. FERC Must Consider New Information Concerning the Valley Crossing Alternative

On June 16, 2020, Rio Bravo applied to amend its authorization for the Pipeline System.¹⁴⁷ Rio Bravo sought:

a reduction in the total number of compressor stations, the elimination of certain measurement facilities, a change to the maximum allowable operating pressure of the pipelines and header system, and an increase in the diameter of the first pipeline from 42 inches to 48 inches, resulting in an increase in the mainline design capacity on the first pipeline from 2.25 Bcf/d to 2.6 Bcf/d.¹⁴⁸

These changes were in response to numerous comments that the initially approved Pipeline System had environmental impacts that were unnecessary and unjustified.¹⁴⁹ For example, as initially approved, the Pipeline System included a compressor station sited in wetlands.¹⁵⁰ Despite these comments, FERC wrongly approved the Project with the unnecessary environmental impacts. After a round of litigation, both concerning the Project's Clean Water Act section 404 permit and FERC's initial authorization of the Project, Rio Bravo implicitly acknowledged that those commenters were correct – the Project could be redesigned to avoid certain environmental impacts.

¹⁴⁷ See Accession 20200616-5023.

¹⁴⁸ *Id.* at 1.

¹⁴⁹ See Accession 20200716-5148, at 1 (collecting citations to such comments).

¹⁵⁰ Final EIS at 4-61.

History is now repeating itself. On December 21, 2020, FERC issued an Environmental Assessment analyzing the environmental impacts of the proposed amendment.¹⁵¹ In that Environmental Assessment, FERC briefly addressed a system alternative to the proposed pipeline—the Valley Crossing Alternative.¹⁵² This alternative would have used the existing Valley Crossing pipeline to supply some of the gas to the Rio Grande terminal, obviating the need for one of the Rio Bravo pipelines.¹⁵³ But FERC rejected that alternative because, it claimed, that “the Valley Crossing Pipeline’s volume is fully subscribed by end users in Mexico.”¹⁵⁴ FERC did not address whether the Valley Crossing Pipeline could be altered to increase capacity and whether that increased capacity could be used to supply gas to the Project. But FERC’s approval of the nearby Annova project stated that “Annova LNG Brownsville will receive ... up to 1.2 billion cubic feet ... per day of natural gas from the existing intrastate system of Valley Crossing Pipeline, LLC.”¹⁵⁵ Annova planned to expand the Valley Crossing pipeline to accommodate the 1.2 bcf/d capacity.¹⁵⁶ On March 22, 2021, Annova announced the cancellation of the Annova LNG project. On March 25, 2021, commenters brought the Annova cancellation to FERC’s attention and explained that FERC needed to supplement its EIS for the Project to analyze whether the planned Valley Crossing expansion could be used to supply gas for the Project.¹⁵⁷

¹⁵¹ See Accession 20201221-3012.

¹⁵² *Id.* at 48-49.

¹⁵³ Accession 20210325-5248, at 2.

¹⁵⁴ *Id.* at 49.

¹⁵⁵ *Annova Common Infrastructure, LLC*, 169 FERC ¶ 61,132, P9 (Nov. 22, 2019).

¹⁵⁶ Annova FEIS at 1-15, Accession 20190419-3027 (summarizing Annova Response to Information Request, Accession 20190325-5179).

¹⁵⁷ Accession 20210325-5248.

FERC has now wrongly approved Rio Bravo's amendment application without supplementing its NEPA analysis to assess the valley Crossing Alternative.

At the threshold, Valley Crossing is a feasible alternative to Rio Bravo's proposed pipeline system. Like the Rio Bravo pipeline system Valley Crossing originates at the Agua Dulce hub and passes directly through the Rio Grande terminal site.¹⁵⁸ Indeed, Rio Grande terminal already plans to receive commissioning gas from Valley Crossing. FERC's previous approval of Annova's plan to add capacity to Valley Crossing indicates that the applicants here can undertake the same project. Such a project may be even more workable here as Rio Bravo and Valley Crossing share a parent company—Enbridge. And if Rio Bravo transported 1.2 bcf/d of gas via Valley Crossing, Rio Bravo would plainly be able to eliminate one of the pipelines it proposes to build. If that were the case, the Rio Bravo system would only need to deliver 3.3 bcf/d of gas. This volume could easily be delivered by a single pipeline. As FERC is aware, it has approved a 42-inch pipeline capable of delivering almost 4.0 bcf/d.¹⁵⁹ Finally, Valley Crossing would provide the kind of service Rio Grande claims to need—Annova had signed a 20-year agreement for “firm transportation service.”¹⁶⁰

The new information concerning the cancellation of the Annova project and the

¹⁵⁸ Final EIS at 3-13; *see also id.* at 3-14 (maps of Rio Bravo and Valley Crossing routes), 2-26 – 2-27 (Rio Bravo would directly adjoin the Valley Crossing Pipeline for 42.3 miles).

¹⁵⁹ *Alaska Gasline Development Corp.*, 171 FERC ¶ 61,134, P4 (2020).

¹⁶⁰ Annova LNG and Enbridge Sign Pipeline Agreement (Jan. 22, 2020), *available at* <https://annovalng.com/annova-lng-and-enbridge-sign-pipeline-agreement/> (Accession 20210325-5248). *See also* Enbridge Inc. Reports Strong Fourth Quarter and Full Year 2019 Results (Feb. 14, 2020), *available at* <https://www.sec.gov/Archives/edgar/data/895728/000089572820000008/ei1231198-kr991.htm> (Accession 20210325-5248).

availability of 1.2 bcf/d of uncontracted for capacity on the Valley Crossing pipeline triggers NEPA's supplementation requirement. The information is significant because it concerns an alternative that would reduce the Project's environmental impacts. As described above, where new information allows for consideration of a potential environmentally beneficial alternative, supplementation is required. Also, as described above, FERC retained sufficient authority to weigh the benefits against the environmental costs.

While FERC's explanation for rejecting the alternative in the Remand Order is not a substitute for supplementing its EIS, it is also substantively baseless. According to FERC:

There is no evidence that, given the cancellation of the Annova Project, there has been any expansion of that system resulting in available firm capacity. Thus, as explained in the EA, any transportation service that could be obtained on the Valley Crossing Pipeline would be on an interruptible basis only. Additionally, there is no evidence that Valley Crossing Pipeline, LLC, an entity not subject to our jurisdiction, is either willing or able to modify its facilities in a way that would create enough firm capacity to eliminate the need for Rio Bravo's Pipeline 2. Therefore, we agree with the EA's conclusion that the Valley Crossing Pipeline is not a feasible alternative to the Amendment Project.¹⁶¹

This is arbitrary. FERC guidance explains:

System alternatives are those that would meet the objectives of the project, but would use a different (and often existing) natural gas facility/pipeline system or a different configuration of facilities that would eliminate the need to construct all or part of the project. If modifications or additions to the existing facilities/systems would be required to meet the project objectives, you should quantify the environmental impact of the modification for comparison with those of the proposed project....

System alternatives should include alternative configurations both on your own system and on one or more other companies' facilities....

¹⁶¹ Remand Order P72.

Examples of Alternatives using other companies' facilities[] should include an examination of current capacities of existing systems, to the extent this information is available, and an assessment of these systems' ability to individually or in combination meet the objectives of the proposed project. If the existing systems are inadequate, you should examine whether any recently proposed facilities are able to individually or in combination meet the objectives of the proposed project. If these recently proposed facility are also inadequate, you should examine what new facilities one or more companies would likely need to construct to achieve the objectives of the proposed project.¹⁶²

This is exactly what FERC needs to do here to ensure it takes a hard look at alternatives. Notably, FERC is explicitly instructed to assess new construction by third parties. But here FERC essentially rests on the assumption that Valley Crossing, as currently constituted, could not supply the needed gas to Rio Grande on a firm basis. This approach is arbitrary. FERC need only ask Rio Bravo to inquire whether a company owned by the same parent company as it can expand. FERC has not done so and has not explained why it has not done so.

FERC also *still* hasn't established that Valley Crossing can't provide the needed gas without any modifications. In a 2020 scoping comment, commenters explained that 1.5 bcf/d of capacity on Valley Crossing has been used.¹⁶³ Proprietary data provided by PointLogic,¹⁶⁴ which FERC can and must ask Rio Bravo and its Enbridge to confirm, indicates that Valley Crossing's weekly utilization only exceeded 33% once in the time since that scoping comment was filed, only rising to 36% in that week. It appears that in actual practice, Valley Crossing has never had

¹⁶² FERC, Guidance Manual for Environmental Report Preparation, at 4-136 (Feb. 2017), available at <https://www.ferc.gov/sites/default/files/2020-04/guidance-manual-volume-1.pdf>.

¹⁶³ Accession 20200828-5242, at 3.

¹⁶⁴ <https://ihsmarket.com/products/pointlogic-gas.html>.

less than 1.6 bcf/d available capacity. Thus, even if Valley Crossing's capacity is contracted-for, those contract holders may be willing, or even eager, to relinquish those contracts, which would be environmentally preferable to constructing additional pipeline capacity.

To be clear, the Valley Crossing alternative may have adverse environmental consequences. To add capacity to the Valley Crossing pipeline, compression would likely need to be added. Compressor stations, of course, emit air pollution in addition to having other consequences. These consequences need to be studied as part of the NEPA process.

In sum, FERC must supplement its EIS to properly assess the Valley Crossing Alternative. FERC must analyze whether the cancellation of the Annova project would allow Rio Bravo to utilize the capacity that Annova planned to use. FERC must also analyze whether Rio Bravo could use the Valley Crossing pipeline absent modifications. At the very least, FERC must satisfy its duty to assess and determine the significance of the new information concerning the Valley Crossing Alternative, *i.e.*, both the Annova cancellation and the information that Valley Crossing's existing capacity is underutilized.

F. FERC must supplement its EIS based on new information concerning launch failures at the SpaceX Boca Chica site.

In issuing the Remand Order, FERC ignored multiple issues that require FERC to supplement the Environmental Impact Statement initially issued to review the Project and relied on extensively in the Remand Order.

NEPA imposes a continuing obligation to "supplement" and reconsider prior findings even after the initial analysis is prepared and the agency has taken initial action, when "significant

new circumstances or information “are presented.”¹⁶⁵ This duty persists so long as there is “remaining government action [that] would be environmentally significant” and the agency retains “a meaningful opportunity to weigh the benefits of the project versus the detrimental effects on the environment.”¹⁶⁶ “When new information comes to light the agency must consider it, evaluate it, and make a reasoned determination whether it is of such significance as to require implementation of formal NEPA filing procedures.”¹⁶⁷

In the FEIS, FERC analyzed the impacts for Falcon 9 and Falcon Heavy launch vehicles.¹⁶⁸ FERC found that launch failures of these vehicles could result in cascading damage, but did not disclose what the cascading damage may be or how launch failures could have such a result.¹⁶⁹ Instead, FERC concluded that Rio Grande LNG need only develop response procedures should a launch failure occur based, in part, on FAA guidance regarding SpaceX launches.¹⁷⁰ FERC’s analysis did not account for “conceptual launch vehicles that may launch from the SpaceX launch facility such as the Big Falcon Rocket.”¹⁷¹

Since the release of the FEIS, the FAA has published written re-evaluations and addendums for SpaceX’s EIS in August 2019, November 2019, June 2020, May 2020, and

¹⁶⁵ 40 C.F.R. § 1502.9(d)(1).

¹⁶⁶ *Marsh v. Oregon Nat. Res. Council*, 490 U.S. 360, 372 (1989).

¹⁶⁷ *People Against Nuclear Energy v. U.S. Nuclear Regul. Comm’n*, 678 F.2d 222, 234 (D.C. Cir. 1982), *rev’d on other grounds sub nom. Metro. Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766 (1983) (quotation omitted).

¹⁶⁸ FEIS at 4-357.

¹⁶⁹ *Id.*

¹⁷⁰ *Id.* at 4-358, 4-366, 3-376.

¹⁷¹ *Id.* at 4-357.

December 2020, a Final Programmatic Environmental Assessment (“PEA”) in June 2022 for the SpaceX’s Starship Super Heavy,¹⁷² the largest rocket every built,¹⁷³ and a written re-evaluation of the 2022 Final PEA in April 2023.¹⁷⁴ SpaceX is conducting an expanded suite of tests, is launching larger rockets more frequently than anticipated in 2019, and has plans to continue doing so. According the PEA, debris from launches was “expected to be contained within the debris study area, which is a 700-acre area within the ‘all hard checkpoint’” immediately surrounding the launch site.¹⁷⁵ The PEA also identified impacts to historic properties,¹⁷⁶ essential fish habitat,¹⁷⁷ and federally protected species.¹⁷⁸ Launches from the site will also contribute to degradation of local air quality.¹⁷⁹

Following the FAA’s PEA and program approval, SpaceX began test launching the Starship vehicles. Between 2020 and 2021, four of five launches ended in explosions and the fifth still ended in a fire.¹⁸⁰ One of those launches in March of 2021 resulted in debris landing as far as

¹⁷² https://www.faa.gov/space/stakeholder_engagement/spacex_starship. This is the current construction of the “Big Falcon” referenced in the FEIS.

¹⁷³ <https://www.nasaspacelight.com/2020/10/the-continued-evolution-of-the-big-falcon-rocket/>.

¹⁷⁴ <https://time.com/6252046/spacex-starship-rocket/>.

¹⁷⁵ https://www.faa.gov/space/stakeholder_engagement/spacex_starship

¹⁷⁶ FAA PEA 98.

¹⁷⁷ FAA PEA S-18, ES-20, ES-22.

¹⁷⁸ FAA PEA S-25

¹⁷⁹ FAA PEA S-25-26; The April 2023 reassessment affirmed the conclusions of the original PEA.

¹⁸⁰ FAA PEA - 50

¹⁸¹ <https://time.com/6252046/spacex-starship-rocket/>.

5 miles from the launch site.¹⁸¹ More recently, on April 20, 2023, the test launch of the Starship Super Heavy resulted in an explosion and a 25-foot crater at the launch site.¹⁸² As a result, parts of Port Isabel, several miles away from the FAA’s predicted zone of impact,¹⁸³ were coated in dust and wet particulate.¹⁸⁴ Dispersion of particulate matter as far as six-miles from the launch site was not an FAA considered or predicted impact from the Starship program.¹⁸⁵ Residents have also reported their homes shaking during past launches. According to residents, this shaking was more pronounced during the April 20th launch, and at least one person has reported a broken window as a result of the launch’s impacts.¹⁸⁶

Despite the FAA categorizing explosions of this nature “anomalies”¹⁸⁷, ongoing explosions at the SpaceX launch site in Boca Chica should be expected given the SpaceX ethos of learning from failure and disregard for launch impacts.¹⁸⁸ Multiple news outlets have reported that SpaceX’s progress is the result of taking significant risks to learn from their mistakes.¹⁸⁹

¹⁸¹ See CBD v. FAA suit, P 65.

¹⁸² <https://www.nytimes.com/2023/04/21/us/spacex-rocket-dust-texas.html>

¹⁸³ FAA PEA – 700 acres.

¹⁸⁴ <https://www.nytimes.com/2023/04/21/us/spacex-rocket-dust-texas.html>

¹⁸⁵ FAA PEA

¹⁸⁶ <https://www.nytimes.com/2023/04/21/us/spacex-rocket-dust-texas.html>

¹⁸⁷ FAA PEA – 29 “A Starship/Super Heavy test operation or launch could result in a deviation from what is expected (referred to as an anomaly). An anomaly on the launch pad could cause fire on the launch pad and/or an explosion that spreads debris.” The PEA goes on to say that such anomalies are “unexpected.”

¹⁸⁸ See e.g. Tweet from Elon Musk, Apr. 20, 2023 (Following the explosion that left a 25-ft crater in Boca Chica “Congrats @SpaceX team on an exciting test launch of Starship! Learned a lot for next test launch in a few months.”) Available at: <https://twitter.com/elonmusk/status/1649050306943266819>

¹⁸⁹ <https://www.theverge.com/2023/4/26/23699365/spacex-starship-damage-launch-pad-debris> (“SpaceX’s high tolerance of risk is what has enabled the company to make such impressive

However, SpaceX's apathetic approach towards risk also results in a blind eye for safety concerns known to the company prior to launches. For instance, in December 2020, SpaceX ignored FAA's determination that a starship launch would violate the company's launch license. That launch ended in an explosion at the rocket's landing.¹⁹⁰ Although no individuals or homes were impacted, the FAA's concern was that impacts from an in-air explosion would extend to people's homes.¹⁹¹ SpaceX launched its prototype anyway. Similarly, SpaceX knew that a steel plate would prevent the launch pad from disintegrating during the April 20, 2023 launch but chose to proceed with the launch even though the plate was not ready.¹⁹²

It appears that the frequency of explosions at the SpaceX launch site has resulted in more significant environmental impacts than FERC's FEIES or the FAA's PEA disclosed. Relatedly, the FAA has now been sued by several organizations for its failure to evaluate the true impacts of the program, including frequency of lost access to public spaces used by both indigenous tribes and the public at large,¹⁹³ increased wildlife mortality,¹⁹⁴ damage to essential wildlife habitat,¹⁹⁵

strides forward in areas like reusable rockets"); <https://www.space.com/every-spacex-starship-explosion-lessons-learned> (discussing that SpaceX's prototype spacecraft has been a risky and explosive process "simply because Starship is a new system trying to do unusual things.")

¹⁹⁰ <https://www.theverge.com/2021/6/15/22352366/elon-musk-spacex-faa-warnings-starship-sn8-launch-violation-texas>

¹⁹¹ *Id.*

¹⁹² <https://twitter.com/elonmusk/status/1649523985837686784>; <https://www.theverge.com/2023/4/26/23699365/spacex-starship-damage-launch-pad-debris>

¹⁹³ *CBD v. FAA*, petition 72-23.

¹⁹⁴ *Id.* at 69. This includes the same migratory birds impacted by the construction and operation of the Project.

¹⁹⁵ *Id.* 66-68.

including losses from fires which release PM_{2.5}¹⁹⁶ a criteria pollutant that is already near the NAAQS in the local area,¹⁹⁷ as well as increased activities and explosive “anomalies” than predicted by the PEA or authorized.¹⁹⁸

FERC’s previous analysis of safety and cumulative impacts based on the proximity of the Terminal to the SpaceX launch site and current environmental conditions 46 and 131 that Rio Grande LNG must develop response procedures for SpaceX launches is insufficient. Experientially, SpaceX has demonstrated a disregard of FAA safety guidance. Its program has also demonstrated that launches can have impacts far outside FAA’s impact zone. FERC must supplement its initial environmental analysis to evaluate the potential for cascading impacts from future failed launches of the Starship Super Heavy, including particulate matter potentially distributed by future launches that may coat the terminal and vibrations that are strong enough to shatter glass several miles away.¹⁹⁹ The radius of particulate matter extended as far away as 7 miles encompassing the Rio Grande site.²⁰⁰ FERC should also evaluate the cumulative impacts of

¹⁹⁶ [https://www.epa.gov/wildfire-smoke-course/why-wildfire-smoke-health-concern#:~:text=Fine%20particles%20\(also%20known%20as,are%20of%20greatest%20health%20concern.](https://www.epa.gov/wildfire-smoke-course/why-wildfire-smoke-health-concern#:~:text=Fine%20particles%20(also%20known%20as,are%20of%20greatest%20health%20concern.)

¹⁹⁷ *See infra* § II(C)(5).

¹⁹⁸ *Id.* at 63.

¹⁹⁹ *See Wild Virginia v. United State Forest Service*, 24 F.4th 915, 927-29 (4th Cir. 2022) (Finding NEPA violation when Forest Service and BLM violated NEPA when they failed to consider real-world data which indicated modeled impacts were unreasonable and inconsistent with actual impacts.)

²⁰⁰ In a May 4th response to requests for environmental information, Rio Grande LNG disclosed that no debris from the launch was found at the terminal site. FERC Data Request 27-Apr-2023 – Responses. That no debris was found at the site does not preclude the potential of impacts from vibrations or the dispersed particulate matter had the site been operational at the time of the failure.

SpaceX's launches, launch failures, and the simultaneous operation of Rio Grande LNG on the environmental justice communities located in the vicinity of the terminal and the SpaceX launch site. Finally, FERC should reconsider whether it is in the public interest to have an export terminal, pipeline, and tankers for volatile and combustible liquids so close to a site where rocket launches and landings are repeatedly resulting in explosions and fires.

III. Conclusion

For the reasons stated above, Sierra Club hereby requests rehearing of the Remand Order and that FERC rescind the certificate order.

Respectfully submitted May 22, 2023

/s/ Nathan Matthews

Nathan Matthews
Sierra Club
2101 Webster Street, Suite 1300
Oakland, CA 94612
415-977-5695
nathan.matthews@sierraclub.org
Attorney for Sierra Club

/s/ Gilberto Hinojosa

Gilberto Hinojosa
City Attorney, City of Port Isabel
504 E. Saint Charles St.
Brownsville, Texas 78520
956-544-4218
ghinojosa@ghinojosalaw.net
Attorney for City of Port Isabel

/s/ Jennifer Richards

Jennifer Richards
Texas Rio Grande Legal Aid
4920 N. IH-35
Austin, TX 78751
512-374-2758
jrichards@trla.org
Attorney for Vecinos para el Bienestar de la Comunidad Costera

/s/ Juan Mancias

Juan Benito Mancias
Yen Nawi's Kiapani'k Tribal Chairman
The Carrizo/Comecrudo Tribe of Texas
(Esto'k Gna)
1250 Roemer Ln., Unit C
Floresville, TX 78114
onebigjuan@gmail.com
www.CarrizoComecrudoNation.com
On behalf of the Carrizo/Comecrudo Tribe of Texas

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused the foregoing document to be served upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Oakland, CA May 22, 2023.



Nathan Matthews
Senior Attorney
Sierra Club
2101 Webster Street, Suite 1300
Oakland, CA 94612
415-977-5695
nathan.matthews@sierraclub.org

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Rio Grande LNG, LLC	)	Docket No. CP16-454-006
	)	CP16-454-00_
	)	CP16-455-00_
Rio Bravo Pipeline Company, LLC	)	CP16-455-003
	)	CP20-481-001

**MOTION FOR LEAVE TO ANSWER AND
ANSWER OF RIO BRAVO PIPELINE COMPANY, LLC**

Pursuant to Rules 212 and 213 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission (“Commission” or “FERC”),¹ Rio Bravo Pipeline Company, LLC (“Rio Bravo”) hereby moves for leave to answer² and answers the request for rehearing filed by Vecinos para el Bienestar de la Comunidad Costera, Sierra Club, City of Port Isabel, and the Carrizo/Comecrudo Tribe of Texas (“Movants”) on

¹ 18 C.F.R. §§ 385.212, 385.213 (2022).

² Rio Bravo may answer the request for rehearing if permitted by the Commission. The Commission permits answers to requests for rehearing where, as here, the Commission’s consideration of matters addressed in the answer will facilitate the decisional process or aid in the explication of issues, ensure that the Commission has a complete and accurate record upon which to make an informed decision, and causes no undue delay in the proceeding. *See, e.g., Steckman Ridge, L.P.*, 125 FERC ¶ 61,217 at P 4 (2008) (accepting answer to a request for rehearing “provid[ing] information that assists [the Commission] in addressing the new allegations and arguments raised on rehearing”); *PSEG Power Conn., LLC*, 113 FERC ¶ 61,210 at P 17 (2005) (accepting answer to a request for rehearing that “provided information that assisted [the Commission] in [its] decision making process”); *Algonquin Gas Transmission Co.*, 96 FERC ¶ 61,364 at p. 62,368 (2001) (finding “good cause to admit Algonquin’s answer [to a request for rehearing] in order to ensure a complete record in this proceeding”); *Norteño Pipeline Co.*, 94 FERC ¶ 61,247 at p. 61,869 (2001) (finding the same “since it will cause no undue delay and will ensure a complete record upon which the Commission may base its findings”); *KN Wattenberg Transmission LLC*, 94 FERC ¶ 61,189 at p. 61,671 (2001) (finding the same “in order to insure a complete record in this proceeding”). The Commission’s consideration of matters addressed in this Answer will facilitate the Commission’s decisional process because this Answer clarifies the record and ensures that the Commission will have a complete record to address the Rehearing Request. Accordingly, good cause exists for the Commission to accept this Answer.

May 22, 2023, in the above-captioned proceedings (the “Rehearing Request”).³ For the reasons set forth herein, Rio Bravo respectfully requests that the Commission accept this Answer and deny the Rehearing Request. In support of this Answer, Rio Bravo shows as follows:

I. BACKGROUND

On November 22, 2019, the Commission issued an order authorizing Rio Grande LNG, LLC (“Rio Grande”) to construct and operate a liquefied natural gas (“LNG”) export terminal in the Brownsville, Texas area (the “Terminal”) and granting Rio Bravo a certificate of public convenience and necessity for the construction and operation of a greenfield pipeline system (as subsequently amended, the “Pipeline Project”) to provide firm gas transportation service to the Terminal.⁴ Prior to issuing the November 22 Order, the Commission conducted a thorough environmental review including numerous opportunities for public comment, multiple rounds of information requests, and preparation of a final environmental impact statement (“FEIS”).⁵ Based on this review, the Commission determined that, as conditioned in the November 22 Order, the Terminal is not inconsistent with the public interest under Section 3 of the Natural Gas Act (“NGA”) and the Pipeline Project is required by the public convenience and necessity under

³ Request for Rehearing of *Vecinos para el Bienestar de la Comunidad Costera*, Sierra Club, City of Port Isabel, and the Carrizo/Comecrudo Tribe of Texas, Docket Nos. CP16-454-000, *et al.* (May 22, 2023) (“Rehearing Request”).

⁴ See *Rio Grande LNG, LLC and Rio Bravo Pipeline Company, LLC*, 169 FERC ¶ 61,131 (2019) (“November 22 Order”), *order on reh’g*, 170 FERC ¶ 61,046 (2020) (“Order on Rehearing”).

⁵ Final Environmental Impact Statement for the Rio Grande LNG, LLC and Rio Bravo Pipeline Company’s Rio Grande LNG Project, Docket Nos. CP16-454-000, *et al.* (Apr. 26, 2019) (“FEIS”).

Section 7 of the NGA.⁶ The Commission considered requests for rehearing of the November 22 Order and denied rehearing by order issued January 23, 2020, in which the Commission affirmed its prior decision not to utilize the Social Cost of Greenhouse Gases (“SC-GHG”)⁷ tool in evaluating greenhouse gas (“GHG”) emissions associated with the Terminal and the Pipeline Project and concluded that the FEIS had adequately identified and addressed the impact of the Terminal and the Pipeline Project on environmental justice communities.⁸

Certain of the Movants petitioned for review of the November 22 Order and Order on Rehearing in the United States Court of Appeals for the District of Columbia Circuit (“D.C. Circuit”) raising a number of issues regarding the Commission’s review and approval of the Terminal and the Pipeline Project. On August 3, 2021, the D.C. Circuit upheld the Commission’s actions on most claims⁹ but remanded the November 22 Order to the Commission on two discrete issues, directing the Commission to:

(1) “explain whether 40 C.F.R. § 1502.21(c) calls for [the Commission] to apply the social cost of carbon protocol or some other analytical framework, as ‘generally accepted in the scientific community’ within the meaning of the regulation, and if not, why not”; and (2) “explain why it chose to analyze the projects’ impacts only on [environmental justice] communities in census blocks within two miles of the project sites, or else analyze the projects’

⁶ November 22 Order at P 133.

⁷ The D.C. Circuit’s opinion referred to the “social cost of carbon,” whereas the Commission’s order on remand more often refers to the “social cost of GHGs.” Both terms refer to the same tool, but the Commission’s usage (which this Answer follows) reflects the more recent terminology employed by the Interagency Working Group that developed the tool. *Cf. Rio Grande LNG, LLC and Rio Bravo Pipeline Company, LLC*, 183 FERC ¶ 61,046 at P 92 & n.206 (2023) (“Remand Order”) (explaining history of tool and nomenclature).

⁸ Order on Rehearing at PP 64, 98, 103.

⁹ *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, No. 20-1045, 2021 WL 3716769 (D.C. Cir. Aug. 3, 2021).

impacts on [environmental justice] communities within a different radius of each project site”¹⁰

Because the D.C. Circuit found explanatory gaps in the Commission’s analyses of the Terminal’s and Pipeline Project’s “impacts on climate change and environmental justice communities,” the D.C. Circuit also, without addressing the merits of the determinations, required the Commission to reassess its determinations of public interest and public convenience and necessity under sections 3 and 7 of the NGA, respectively, to the extent that they relied on aspects of its environmental analyses with which the court had found fault.¹¹

Separately, Rio Bravo filed an application in Docket No. CP20-481-000 (the “Amendment Application”) to amend its certificate authorization for the Pipeline Project to implement design changes, including the elimination of two of the original three compressor stations, the addition of additional horsepower compression at the remaining compressor station, and an increase in the diameter of the first pipeline from 42 inches to 48 inches. The design changes improve the hydraulic efficiency of the Pipeline Project, decrease the Pipeline Project’s above-ground footprint, and decrease overall Pipeline Project emissions.¹²

¹⁰ Remand Order at P 1 (citing *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321, 1330-31 (D.C. Cir. 2021) (“*Vecinos*”). The provision at 40 C.F.R. § 1502.21(c) under the 2020 NEPA regulations appears at 40 C.F.R. § 1502.22(b) in the 1978 regulations as the Commission applied to its review here.

¹¹ *Vecinos*, 6 F.4th at 1331-32 (“The Commission’s determinations of public interest and convenience under the NGA were therefore deficient to the extent that they relied on its NEPA analyses of the projects’ impacts on climate change and environmental justice communities.”).

¹² Abbreviated Application of Rio Bravo Pipeline Company, LLC for Amendment to Certificate of Public Convenience and Necessity at 3, Docket No. CP20-481 (Jun. 16, 2020) (“Amendment Application”).

Both the remand and amendment proceedings address narrow issues. The Commission correctly limited its review on remand to the issues directed by the court, and correctly limited the scope of its review of the Amendment Application to the proposed changes to the design of the Pipeline Project. On April 21, 2023, the Commission issued its Order on Remand and Amending Section 7 Certificate (“Remand Order”), which reaffirmed that the Terminal is not inconsistent with the public interest and the Pipeline Project, as amended, is required by the public convenience and necessity.¹³

Having already built a substantial record prior to the D.C. Circuit’s remand, the Commission enhanced the record and Commission Staff solicited extensive additional information related to the remanded issues.¹⁴ On May 2, May 10, and December 9, 2022, and on January 9 and February 15, 2023, Commission Staff issued environmental information requests to Rio Bravo regarding environmental justice communities, visual impacts, and air quality emissions data in order to address deficiencies noted in the D.C. Circuit’s decision.¹⁵ Then, the Commission took the unprecedented step of soliciting public comments (both initial comments and reply comments) on Rio Grande and Rio Bravo’s responses to Commission Staff’s various environmental information requests.¹⁶

¹³ Remand Order at P 208 (“We continue to find that the projects, as conditioned in the Authorization Order and as modified herein, are environmentally acceptable actions. We continue to support our previous findings of the benefits of these projects. Further, as stated above, we find that ... the Rio Bravo Pipeline Project, as amended, is required by the public convenience and necessity, as conditioned in the Authorization Order and as modified herein.”).

¹⁴ On July 29, 2016, August 29, September 22, September 30, and October 27, 2016; August 2, 2017; February 1, and August 24, 2018; July 10, and October 15, 2020; February 3, May 2, May 10, August 16, August 31, and December 9, 2022; and on January 6, January 9, February 10, and February 15, 2023, Commission Staff issued information requests to Rio Grande and Rio Bravo related to the Project in Docket Nos. CP16-454, -455 and/or CP20-481.

¹⁵ Remand Order at P 82.

¹⁶ *Id.* at P 83.

Numerous comments were filed during that additional public participation period, including comments by the Movants.¹⁷ The Commission accepted and addressed additional comments that Vecinos para el Bienestar de la Comunidad Costera and Sierra Club submitted well after the close of the reply comment period.¹⁸ Each of Rio Bravo's and Rio Grande's responses to Commission Staff's information requests was publicly available for review and comment by interested parties—including Movants. Throughout the Commission's review on remand and of the Amendment Application, the Commission invited public participation and the public had ample opportunity to review information related to the remand issues and the Amendment Application.

II. ANSWER AND ARGUMENT

Movants allege there are deficiencies in the Commission's analyses in the Remand Order and claim that both the NGA and the National Environmental Policy Act ("NEPA") require that the Commission expand its environmental review of the Terminal and Pipeline Project beyond the scope of the remand and the Amendment Application. Movants further argue that the Commission was obligated to "publish[] a new NEPA analysis," and that the Commission's decision not to do so renders the Remand Order "invalid."¹⁹ Movants misunderstand NEPA's requirements, and the analyses they seek were already provided in sufficient detail in the Remand Order and in the Amendment Application's 2020

¹⁷ See, e.g., *id.* at PP 84-87.

¹⁸ Remand Order at PP 82-83, 86-87.

¹⁹ Rehearing Request at 1.

Environmental Assessment (“EA”).²⁰ Movants fail to identify any legitimate grounds for rehearing.

The issues remanded to the Commission by the D.C. Circuit were addressed in a thorough analysis that was properly limited in scope and sufficiently set forth in the Remand Order. The Remand Order—all 165 pages of it—demonstrates in punctilious detail the properly tailored review of the discrete issues before the Commission for both the Terminal and Pipeline Project. In the Remand Order, the Commission summarized the newly gathered data and additional information obtained through extensive additional submissions and public engagement on the issues remanded to the Commission.²¹ The Commission supplemented its prior environmental analysis by “(1) addressing the argument regarding the [SC-GHG] and 40 C.F.R. § 1502.21(c); and (2) updating [its] analysis of the projects’ environmental justice impacts consistent with the Commission’s current practice” directly in the Remand Order.²²

The D.C. Circuit has found that this type of supplementation satisfies the Commission’s obligations under NEPA. Recognizing that “[t]he EIS . . . is not an end in itself, but rather a means toward the goal of better decisionmaking,”²³ the D.C. Circuit has upheld agency action when the agency—subsequent to the EIS—undertook the requisite investigations, received and responded to public comments, and incorporated its findings

²⁰ Environmental Assessment for Rio Bravo Pipeline Company, LLC’s Rio Bravo Pipeline Project Amendment, Docket No. CP20-481-000 (Dec. 21, 2020) (“EA”).

²¹ *See, e.g.*, Remand Order at PP 94–101 & nn.212-29 (providing detailed greenhouse gas emissions information with citations to the record for underlying data); *id.* at PP 102-110 & nn. 231-428 (providing detailed environmental justice analyses with citations to the record for underlying data).

²² *Id.* at P 3.

²³ *Friends of the River v. FERC*, 720 F.2d 93, 106 (D.C. Cir. 1983) (citing *North Slope Borough v. Andrus*, 642 F.2d 589, 599-600 (D.C. Cir. 1980)).

in a publicly accessible order.²⁴ While Movants have identified a handful of events or changes that have occurred since the original Commission approvals for the Terminal and Pipeline Project, the mere fact that some limited new information is available does not provide a basis for undermining or delaying these proceedings.²⁵ NEPA only requires an agency to prepare a supplemental NEPA analysis (such as a supplemental EIS or “SEIS”) when the “agency makes substantial changes to the proposed action that are relevant to environmental concerns; or [t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.”²⁶ There have been no such substantial changes to the proposed action or significant new circumstances or information related to the Terminal or the Pipeline Project since the Commission’s prior approvals that have not already been reviewed in a NEPA document (*i.e.*, the 2020 EA for the Amendment Application) that would justify any further analysis than the Commission already has performed.

In short: the Remand Order is appropriately tailored to the issues remanded by the D.C. Circuit and put before the Commission as a result of the Amendment Application. The Remand Order clearly articulates the basis for the Commission’s decision to reaffirm that the Terminal is not inconsistent with the public interest and the Pipeline Project, as

²⁴ *Id.* at 106-107 (upholding agency action despite insufficient analysis in the EIS on a power purchase alternative, which the agency addressed in a post-license supplementation of its record of decision). *See also* *NRDC v. U.S. Nuclear Regul. Comm’n*, 879 F.3d 1202, 1210–12 (D.C. Cir. 2018) (finding “permissible” an agency’s reliance on post-EIS supplements to augment its decision-making).

²⁵ *See Marsh v. Oregon Nat. Res. Council*, 490 U.S. 360, 373 (1989) (“[A]n agency need not supplement an EIS every time new information comes to light after the EIS is finalized. To require otherwise would render agency decisionmaking intractable, always awaiting updated information only to find the new information outdated by the time a decision is made.”).

²⁶ 40 C.F.R. § 1502.9(c)(1) (2022). As the Commission explained in the Remand Order, it followed the 1978 NEPA regulations in completing the NEPA analysis here. *See* Remand Order at P 45.

amended, is required by the public convenience and necessity.²⁷ The Rehearing Request should be denied and the Commission should affirm its findings set forth in the Remand Order. The following sections address Movants’ arguments related to the Pipeline Project, including GHG and air emissions issues, the Commission’s updated environmental justice analysis and related public involvement, and the scope of the Commission’s review of the Amendment Application and alternatives.²⁸

A. The Commission’s Analysis of GHG Emissions Was Reasonable and Complied with the Court’s Mandate.

1. The Commission Correctly Explained That Nothing in the NGA or NEPA Required It to Employ the SC-GHG Tool, but Nonetheless the Commission Went Beyond Its Legal Obligations by Providing SC-GHG Calculations.

Regarding GHG emissions, the D.C. Circuit gave the Commission a single, narrow task on remand: to “explain whether 40 C.F.R. § 1502.21(c) calls for it to apply the social cost of carbon protocol or some other analytical framework, as ‘generally accepted in the scientific community’ within the meaning of the regulation, and if not, why not.”²⁹ The Commission did precisely that. It concluded that § 1502.21(c) does *not* require it to use the SC-GHG tool or some other extant analytic framework to assess whether the GHG

²⁷ See Remand Order at PP 94-95.

²⁸ Movants also raise other issues related solely to the Terminal. Given that the obligation lies with Movants to properly raise and present arguments on rehearing with reasonable specificity, Rio Bravo does not address herein arguments advanced only as to the Terminal, including additional air emissions and air modeling issues, additional carbon capture and sequestration (“CCS”) project considerations, and potential impacts associated with SpaceX development near the Terminal. Rio Bravo understands that Rio Grande intends to respond to these Terminal-specific issues in its answer to the Movants’ pleading.

²⁹ *Vecinos*, 6 F.4th at 1330. The court also instructed the Commission to “reconsider” its public interest and public convenience and necessity analyses under the NGA upon remedying the lack of explanation regarding the relevance (or lack thereof) of § 1502.21(c). *Id.* at 1331. As explained further in Section II.A.3, the Commission also carried out this portion of the court’s instructions on remand.

emissions associated with the projects are “significant.”³⁰ And it explained why. As to the “social cost of GHGs tool,” the Commission explained that “section 1502.21 of the CEQ regulations does not require its use in this proceeding” because it “was not developed for project level review and . . . does not enable the Commission to credibly determine whether the GHG emissions are significant,” notably because it provides “no criteria to identify what monetized values are significant for NEPA purposes” and the Commission is “unable to identify any such appropriate criteria.”³¹ As for other possible “theoretical approaches,”³² the Commission explained that it is unaware of “any other currently scientifically accepted method that would enable the Commission to determine the significance of reasonably foreseeable GHG emissions.”³³ The Commission thus provided precisely the explanation the D.C. Circuit instructed it to give. Moreover, although the Commission was not required to do so, it nonetheless went on to provide estimates of the monetized “social cost” of the reasonably foreseeable and causally connected GHG emissions associated with the projects’ construction and operation, including estimates based on each of the Interagency Working Group’s four indicated dollar-value estimation columns.³⁴ The Commission thus went well beyond what the court required.

³⁰ See Remand Order at P 92.

³¹ *Id.* at PP 92-93.

³² 40 C.F.R. § 1502.21(c)(4).

³³ Remand Order at P 93.

³⁴ *Id.* at PP 94-99; *cf.* Interagency Working Grp. on Social Cost of Greenhouse Gases, *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990*, at 5 (Feb. 2021), <https://bit.ly/3rEJnyy> (“IWG Interim Estimates Technical Support Document”). The Commission’s estimates were based on maximally conservative assumptions about the projects’ operations. See Remand Order at PP 96-97.

The Commission's determinations regarding the SC-GHG tool were reasonable. Movants attempt to muddy the waters by asserting that "the social cost of carbon protocol is generally accepted in the scientific community."³⁵ That is incorrect,³⁶ but regardless, it misses the point. The question is not whether the SC-GHG tool is "generally accepted" as a useful analytic tool for certain purposes, but whether the SC-GHG tool provides a generally accepted and applicable method *for deciding whether project-level GHG emissions are "significant" under NEPA*. As the Commission explained, it does not.³⁷ "The social cost of GHGs tool merely converts GHG emissions estimates" (denominated in tons) "into a range of dollar-denominated figures,"³⁸ based on long-term models that attempt to project and then monetize the possible consequences of global GHG emissions under various socioeconomic assumptions.³⁹ The tool's purpose is to provide dollar-value figures—which are *admittedly* speculative and heavily dependent on non-scientific,

³⁵ Rehearing Request at 43 (internal quotation marks omitted).

³⁶ For a more detailed discussion of the numerous flaws in the SC-GHG tool, with citations to the ample academic literature on the subject (which belie any assertion of "general acceptance"), see generally Comments of Enbridge Gas Pipelines, Docket OMB-2021-0006 (June 21, 2021), <https://bit.ly/2X8H3Cy> ("Enbridge OMB Comments").

³⁷ Movants' citation to CEQ's 2016 GHG guidance is misguided. Movants emphasize a footnote in which that guidance stated that the SC-GHG tool "can" provide "useful information" for a NEPA review. Rehearing Request at 44-45. That is a far cry from showing that the SC-GHG is "generally accepted in the scientific community" as a tool for assessing the significance of GHG emissions in project-level NEPA reviews. Moreover, Movants fail to mention that this footnote occurred in the context of a discussion specifically addressed to the methodologies agencies may use "[w]hen conducting a cost-benefit analysis"—something the same guidance hastened to note agencies are *not* required to do under NEPA and *should* not do when (as here) there are important qualitative considerations. Council on Env't Quality, *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews* at 32-33 & n.86 (Aug. 1, 2016), <https://bit.ly/3jBeVjw> (emphasis added).

³⁸ Remand Order at P 93, n.208.

³⁹ See generally, e.g., Comments of the Interstate Natural Gas Association of America at 47-48, Docket Nos. PL18-1-000, *et al.* (Apr. 25, 2022) ("INGAA Apr. 25, 2022 Comments") (describing models and providing additional citations for further reading).

policy-grounded assumptions about the appropriate discount rate⁴⁰—that can be used to assign weight to GHG emissions or reductions thereof in a monetized cost-benefit analysis for rulemakings.⁴¹ But as the Commission has observed, the SC-GHG tool does not purport to identify reasonably foreseeable discrete climate (or other) effects attributable to a particular agency action.⁴² Nor, critically, does it “provide a mechanism or standard for judging ‘significance,’ ”⁴³ whether for NEPA purposes or otherwise.⁴⁴

To the extent Movants criticize the Commission for not providing more detail as to “why or how” the SC-GHG tool is not appropriate for its project-level NEPA analysis and decisionmaking,⁴⁵ their critiques are misguided. The Commission has repeatedly and

⁴⁰ See *id.* at 49-50; accord IWG Interim Estimates Technical Support Document at 17 (acknowledging that the discount rate “has a large influence on the present value of future damages,” but “the choice of a discount rate” remains a “highly contested and exceedingly difficult” issue).

⁴¹ See IWG Interim Estimates Technical Support Document at 10 (noting that the “purpose” of launching the interagency process for determining social cost of carbon estimates was “to ensure that agencies were using the best available information and to promote consistency in the way agencies quantify the benefits of reducing CO₂ emissions in regulatory impact analyses” (emphasis added)).

⁴² See, e.g., *Mountain Valley Pipeline, LLC*, 161 FERC ¶ 61,043, at P 296 (2017) (“[T]he tool does not measure the actual incremental impacts of a project on the environment.”), *aff’d sub nom. Appalachian Voices v. FERC*, No. 17-1271, 2019 WL 847199 (D.C. Cir. Feb. 19, 2019) (per curiam).

⁴³ Remand Order at P 93, n.208; accord *Mountain Valley Pipeline*, 161 FERC ¶ 61,043, at P 296.

⁴⁴ Movants attack a straw man by asserting that “FERC provides no explanation as to why the impact of two million tons of greenhouse gases emitted by an individual project differs from the impact of two million tons emitted as a result of a regulation.” Rehearing Request at 44. The point is not that the physical climate impacts (if any) of a given amount of GHG emissions depend on whether those emissions are associated with a regulation or an infrastructure project—a claim the Commission has never made—but that the SC-GHG tool does not provide an applicable (much less “generally accepted”) method for identifying and assessing environmental impacts attributable to a specific project’s GHG emissions, much less determining whether such impacts are “significant” or “insignificant” for purposes of a NEPA analysis. See, e.g., *Mountain Valley Pipeline*, 161 FERC ¶ 61,043, at P 296. In other words, while the SC-GHG tool may (at least ostensibly) be suited to the analytic methods and purposes of a regulatory cost-benefit analysis when used to compare in relative terms the impacts of different policy options—which is the purpose it was developed to serve—it is *not* suited to the analytic methods and purposes of a project-level NEPA analysis because it does not produce meaningful estimates of a project’s actual physical impacts or offer a metric for judging the significance of such effects. For further discussion, see generally Enbridge OMB Comments at 6–7.

⁴⁵ Rehearing Request at 44.

consistently explained its reasoning on this score,⁴⁶ and the D.C. Circuit has repeatedly upheld its explanations as reasonable, including *again* in a decision issued less than one month ago.⁴⁷ All the court required the Commission to add, in this instance, was an explanation of whether § 1502.21(c) changes this calculus and if not, why not. The Commission has now provided that explanation, discharging its duty under the court's mandate.⁴⁸

In addition, despite its conclusion that § 1502.21(c) did not require it to do so, the Commission nonetheless went on to conduct an SC-GHG analysis of the reasonably foreseeable GHG emissions associated with the projects.⁴⁹ In other words, the Remand Order in fact includes the Commission's "evaluation of [GHG-related] impacts based upon" the SC-GHG tool,⁵⁰ virtually mooting Movants' continued criticism. Indeed, Movants do not identify any flaws or anything incomplete in the Commission's SC-GHG calculations *per se*—meaning that any useful information the SC-GHG tool *could* conceivably provide now *has* been provided in this proceeding,⁵¹ and § 1502.21(c)(4)

⁴⁶ See Remand Order at P 93 & n.208 (citing *Mountain Valley Pipeline*, 161 FERC ¶ 61,043, at P 296); *accord Vecinos*, 6 F.4th at 1328-29 (citing Order on Rehearing at P 104).

⁴⁷ See, e.g., *Ctr. for Biological Diversity v. FERC*, --- F.4th ---, No. 20-1279, 2023 WL 3470860, at *4 (D.C. Cir. May 16, 2023); *Del. Riverkeeper Network v. FERC*, 45 F.4th 104, 111 (D.C. Cir. 2022); *EarthReports, Inc. v. FERC*, 828 F.3d 949, 956 (D.C. Cir. 2016).

⁴⁸ Nor should it come as a surprise that the Commission's explanations regarding the inapplicability of 40 C.F.R. § 1502.21(c) overlap substantially with its longstanding reasons for declining to use the SC-GHG tool. As the D.C. Circuit itself very recently observed, the argument that § 1502.21(c) requires the Commission to use the SC-GHG tool is "in tension" with the D.C. Circuit's longstanding precedent affirming the Commission's rationales for not using that tool and finding it "permissible not to apply the social cost of carbon methodology because of the lack of scientific consensus." *Ctr. for Biological Diversity*, 2023 WL 3470860, at *5.

⁴⁹ See Remand Order at PP 94-101.

⁵⁰ 40 C.F.R. § 1502.21(c)(4).

⁵¹ To be clear, Rio Bravo disagrees that the SC-GHG estimates are, in fact, useful or meaningful—due, among other things, to the inherent flaws in the SC-GHG methodology itself, and the absence of corresponding monetized figures intended to represent the global social benefits of energy over a similarly long time horizon

would be satisfied *even if* (counterfactually) the SC-GHG tool were “generally accepted in the scientific community” as appropriate for analyzing project-level GHG emissions in the NEPA context.⁵²

So far as NEPA is concerned, Movants’ only remaining complaint can be that the Commission did not somehow attempt to use the SC-GHG estimates it calculated to decide whether the GHG emissions at issue, or any climate effects thereof, would be “significant” as opposed to “insignificant.” But nothing in NEPA requires the Commission to make such a binary significance determination here,⁵³ and in any event, the SC-GHG tool would not assist the Commission in making such a determination—because, as the Commission explained, the SC-GHG tool does not provide any “mechanism or standard for judging ‘significance.’”⁵⁴ Movants tacitly concede as much by offering no suggestions for how the Commission could somehow extract a determination that a given amount of GHG emissions is “significant” or “insignificant” from the raw dollar-value estimates the SC-GHG tool provides.⁵⁵ Instead, Movants weakly assert that the absence of “bright-line criteria” should not prevent the Commission from deciding if GHG-related effects are

(without which the SC-GHG paints a lopsided picture that is biased against natural gas). Be that as it may, the fact remains that these SC-GHG estimates *have now been provided*, and Movants do not dispute that the Commission correctly applied the SC-GHG tool by its own terms.

⁵² 40 C.F.R. § 1502.21(c)(4).

⁵³ NEPA generally calls on the Commission to “discuss[]” the “significance” of effects. *See* 40 C.F.R. § 1502.16. That does not in itself require making a binary determination that given effects are “significant” or “insignificant.” *Accord Tenn. Gas Pipeline Co.*, 178 FERC ¶ 61,199, at P 3 (2022) (Phillips & Christie, Comm’rs, concurring) (noting that “an undue focus on drawing a bright line between ‘significance’ and ‘insignificance’ would appear to elevate form over substance”). Movants fail to cite or show any legal requirement to the contrary.

⁵⁴ Remand Order at P 93, n.208.

⁵⁵ *Accord* Remand Order at P 100 (pointing out Sierra Club’s prior failure to offer any such proposal).

“significant.”⁵⁶ But the SC-GHG tool does not provide *any* mechanism or standard, “bright-line” or otherwise, for making such significance determinations. Movants tellingly never dispute this critical point. The Commission thus reasonably decided that it cannot use the SC-GHG tool to render significance determinations, and Movants offer no reason to doubt that conclusion.

2. The Commission Appropriately Declined to Use an Arbitrary 100,000 tpy Significance Threshold.

Tacitly conceding that the SC-GHG tool plainly cannot supply a mechanism for deciding whether a given level of GHG emissions is “significant” under NEPA, Movants pivot to suggesting that the Commission “[a]lternatively” “could” use an arbitrary “threshold” for significance of “100,000 tons per year” (“tpy”) of CO₂ equivalent (“CO₂e”),⁵⁷ as it proposed to do in its Draft Interim Policy Statement on the Consideration of Greenhouse Gas Emissions in Natural Gas Infrastructure Project Reviews (“Draft GHG Policy Statement”).⁵⁸ Movants’ “alternative” proposal suffers from numerous flaws. In the interest of clarity, it bears noting that Movants do not, and could not, suggest that an arbitrary 100,000 tpy significance threshold is “generally accepted in the scientific community.” (Indeed, it is not scientific, and neither Movants nor the Draft GHG Policy Statement contends otherwise.)⁵⁹ Thus, even if, as Movants assert, the Commission “could” use a 100,000 tpy significance threshold, the theoretical availability of that

⁵⁶ Rehearing Request at 45.

⁵⁷ *Id.* at 46.

⁵⁸ *Consideration of Greenhouse Gas Emission in Natural Gas Infrastructure Project Revs.*, 178 FERC ¶ 61,108 (2022) (“Draft GHG Policy Statement”).

⁵⁹ *Accord* Remand Order at P 101, n.229 (noting that the Draft GHG Policy Statement “proposed to establish a NEPA significance threshold of 100,000 tons per year of CO₂e *as a matter of policy*” (emphasis added)).

approach would not detract from either (1) the Commission’s determination that there is no “currently scientifically accepted method that would enable the Commission to determine the significance of reasonably foreseeable GHG emissions”⁶⁰ or (2) the conclusion that 40 C.F.R. § 1502.21(c) does not “call[] for [the Commission] to apply” any particular “analytical framework, as ‘generally accepted in the scientific community’ within the meaning of that regulation,”⁶¹ when analyzing project-level GHG emissions under NEPA.⁶²

In any event, it would be substantively inappropriate for the Commission to employ a 100,000 tpy significance threshold. That is because, as Rio Bravo and others have explained in comments on the Draft GHG Policy Statement, that approach lacks rationality, is contrary to longstanding Commission policy, and would violate NEPA, among other fatal flaws.⁶³

3. The Commission Properly Addressed GHGs in Its Updated NGA Section 3 and 7 Determinations.

Movants passingly criticize the Commission’s public interest and public convenience and necessity determinations under NGA Sections 3 and 7 for a supposed lack of consideration of GHG emissions.⁶⁴ These criticisms miss the mark. Citing *Sabal Trail*, Movants state that the NGA imposes an “obligation” on the Commission “to consider

⁶⁰ Remand Order at P 93.

⁶¹ *Vecinos*, 6 F.4th at 1330.

⁶² *See* Remand Order at PP 92-93.

⁶³ *See* Comments of Enbridge Gas Pipelines at 70-84, Docket Nos. PL18-1-000, *et al.* (Apr. 25, 2022 (“Enbridge Apr. 25, 2022 Comments”). Movants themselves have nothing positive to say about this approach—tellingly limiting themselves to the observation that it *exists* as a theoretical option—and hasten to concede (in a serious understatement) that it is “not . . . ideal.” Rehearing Request at 46.

⁶⁴ *See* Rehearing Request at 42 (asserting that “FERC violated the Natural Gas Act by failing to factor [GHG] emissions into FERC’s public interest analysis”).

greenhouse gas emissions in making its public interest determinations.”⁶⁵ In fact, *Sabal Trail* did not say that,⁶⁶ but in any event, it is beside the point. Just as it did in the original November 22 Order,⁶⁷ the Commission on remand considered GHG emissions along with all of the other environmental factors it analyzed in reaching its bottom-line conclusion that the Terminal and Pipeline Project are not inconsistent with the public interest and required by the public convenience and necessity, respectively.⁶⁸ Thus, Movants are wrong when they assert that the Commission “fail[ed] to factor [GHG] emissions into [its] public interest analysis”⁶⁹—an assertion for which they provide no support.⁷⁰ To be sure, Movants would prefer that the Commission had not approved the projects.⁷¹ But the fact that the Commission did not reach the outcome Movants would have preferred does not mean it “shrugged off” or did not “weigh”⁷² reasonably foreseeable and causally connected GHG emissions associated with the projects, among all other environmental factors, in its NGA analysis.

⁶⁵ *Id.* at 42 (citing *Sierra Club v. FERC*, 867 F.3d 1357, 1376 (D.C. Cir. 2016) (“*Sabal Trail*”)).

⁶⁶ *Sabal Trail* assumed the Commission had “legal authority” to weigh and mitigate GHG emissions, but did not purport to hold that the Commission was *required* to do so. 867 F.3d at 1373-74; *cf.* Enbridge Apr. 25, 2022 Comments at 65-67; INGAA Apr. 25, 2022 Comments at 21-30.

⁶⁷ *See Vecinos*, 6 F.4th at 1331 (noting the Commission’s holistic reliance on its environmental review in approving the projects).

⁶⁸ *See* Remand Order at PP 207-08 (upon completing and summarizing supplemental review, “continu[ing] to find that the projects, as conditioned in the [November 22 Order] and as modified herein, are environmentally acceptable actions” and should be approved under the NGA).

⁶⁹ Rehearing Request at 42.

⁷⁰ Similarly, Movants set up and strike down yet another straw man by suggesting that “FERC’s conclusions will not change no matter how many tons of greenhouse gases are emitted, or no matter what level of impact those emissions have.” *Id.* at 43. The Commission clearly said nothing of the sort. The Commission’s conclusion that the public benefits of these *specific* projects outweigh any potential adverse consequences, including any associated with the level of reasonably foreseeable and causally connected GHG emissions at issue, does not mean the Commission gave no weight to, or failed to consider, the latter.

⁷¹ *Cf.* Rehearing Request at 2 (noting that Movants are “opposed to these projects”).

⁷² *Id.* at 45.

To the extent Movants criticize the Commission for “apparently” “refus[ing] . . . to factor” *SC-GHG estimates* into its analysis of the public interest and public convenience and necessity under the NGA,⁷³ their criticism is misguided. Nothing requires the Commission to employ a monetized approach (using the SC-GHG tool’s specific dollar-value numbers or otherwise) in its NGA public convenience and necessity and public interest assessments. On the contrary, the Commission has traditionally (and appropriately) eschewed a monetary cost-benefit approach in evaluating project applications under the NGA, in recognition of the fact that there are important qualitative considerations at stake. For example, the Commission does not purport to “monetize” visual or wildlife impacts (or, for that matter, many of the public benefits associated with natural gas infrastructure), and nothing would require it to do so even if theoretical methods existed for attempting to do so.⁷⁴ Here, the Commission provided SC-GHG estimates for “informational purposes” only. Nothing in the law requires otherwise.

4. Movants’ Remaining Criticisms Ostensibly Directed at the Commission’s GHG Analysis Are Meritless.

Movants’ remaining GHG-related criticisms fall flat. As for Movants’ assertion that “FERC cannot meet its NEPA and Natural Gas Act obligations simply by comparing direct project emissions with emissions of the United States or Texas as a whole,”⁷⁵ it is unclear what aspect of the Remand Order this purports to find fault with. Because it is

⁷³ *Id.* at 43-44. As Movants note, the Commission stated that it was providing SC-GHG calculations “[f]or informational purposes.” Remand Order at P 94.

⁷⁴ If anything, the Commission would risk running afoul of principles of reasoned decisionmaking if it employed monetized SC-GHG estimates in its NGA analyses but did not employ similarly sweeping, global, and long-term estimates of the monetized social benefits of increased access to affordable energy. See Enbridge Apr. 25, 2022 Comments at 79.

⁷⁵ Rehearing Request at 47.

non-responsive to any identifiable portion of that order, this part of Movants’ Rehearing Request fails to identify any substantial issue for the Commission’s consideration and fails to preserve any issue for subsequent appellate review.⁷⁶ In any event, the Commission has long provided comparison statistics of this kind (including in the November 22 Order)⁷⁷ to help contextualize project-related GHG emissions, and the D.C. Circuit has endorsed this method—*i.e.*, quantifying reasonably foreseeable and causally connected GHG emissions, comparing them to relevant benchmarks, and qualitatively describing the effects of global anthropogenic climate change—as a viable approach to “assessing potential climate change impacts” and “discuss[ing] . . . the significance” of GHG emissions associated with a project.⁷⁸ Given that 40 C.F.R. § 1502.21(c) requires nothing more,⁷⁹ D.C. Circuit case law establishes that the approach the Commission took to analyzing GHG emissions in this case was lawful and reasonable.⁸⁰

Finally, Movants’ argument that the Commission is required to conduct supplemental NEPA analysis in light of the carbon capture and sequestration (“CCS”) proposal⁸¹—a perfunctory repetition of an argument raised elsewhere in the Rehearing Request—fails for reasons explained in Section II.D below.

⁷⁶ See, e.g., *Food & Water Watch v. FERC*, 28 F.4th 277, 287 (D.C. Cir. 2022) (parties must raise issues with specificity on rehearing); *R.I. Consumers’ Council v. Fed. Power Comm’n*, 504 F.2d 203, 213 (D.C. Cir. 1974) (to preserve an issue, a rehearing request must “alert the Commission to particular and possibly remediable problems”).

⁷⁷ See November 22 Order at P 108.

⁷⁸ *Sabal Trail*, 867 F.3d at 1374 (citation omitted); see *Ctr. for Biological Diversity*, 2023 WL 3470860, at *4 (upholding as “reasonable” Commission’s decision to “compare[] [a] Project’s direct emissions with existing [state] and nationwide emissions” “[r]ather than us[ing] the social cost of carbon”).

⁷⁹ See *supra* Section II.A.1.

⁸⁰ *Ctr. for Biological Diversity*, 2023 WL 3470860, at *4-5 (upholding same approach as reasonable, but declining to reach issue of § 1502.21(c)’s relevance because the issue was not preserved).

⁸¹ Rehearing Request at 47-48.

B. The Commission's Analysis of Environmental Justice Was Reasonable and Complied with the Court's Mandate and is Otherwise Lawful.

Movants claim that the Commission was required to prepare a supplemental NEPA document (*e.g.*, an SEIS) to complete its updated environmental justice analysis for three main reasons: (1) to allow for public comment on certain information Rio Bravo and Rio Grande submitted in response to concerns raised in a prior round of public comment; (2) to explain the Commission's changed conclusion that some environmental justice communities would experience disproportionate adverse effects; and (3) to avoid shutting out newly identified environmental justice communities from the Commission's decision-making process. Movants are wrong on every front, as the Commission sufficiently explained its reasoning and analysis pursuant to NEPA and the NGA.

1. The Commission's Request for and Consideration of Additional Air Modeling Information Did Not Trigger the Need for Supplementation.

On remand, the Commission solicited updated information from Rio Bravo and Rio Grande on potential air quality impacts to environmental justice communities and then requested public comment on that information. Based on the public comments received, the Commission then asked for additional information from Rio Bravo and Rio Grande, which each made responsive follow-up submissions on their respective public dockets. Movants now claim that the Commission "did not provide for public comment on this new information despite FERC's reliance on that information."⁸² As Movants see it, "if FERC utilized the NEPA supplementation process, public comment would have been required."⁸³

⁸² Request for Rehearing at 35 (citing Remand Order at P 151 n.330).

⁸³ *Id.* (citing 40 C.F.R. § 1503.1(a)(2)(v)).

But the Commission’s receipt and incorporation of updated information into its Remand Order does not in any way trigger a requirement for a supplemental NEPA document. Public comment was in fact provided.

The Commission’s action to invite and consider public input during the remand period was unprecedented.⁸⁴ Movants nonetheless claim that allowing public comment as to specific responses to environmental information requests does not “alleviate FERC’s obligation to provide its own analysis in the form of an SEIS,”⁸⁵ seemingly arguing that the new air modeling information was significant new information that automatically triggered an SEIS. But as explained above, the D.C. Circuit has previously held an agency need not supplement an EIS based on new information and analysis if that information and analysis has been incorporated . . . into a publicly accessible decision.⁸⁶ “[T]o order the [agency] to reassess its decision every time new [information was] released,” the D.C. Circuit has reasoned, “would risk immobilizing the agency.”⁸⁷ Moreover, the duty to supplement based on new information only accrues when it is “significant new . . . information relevant to environmental concerns and bearing on the proposed action or its impacts.”⁸⁸ Supplementation is not required every time new information comes to light—otherwise agency decision-making would be rendered “intractable, always awaiting updated information only to find the new information is outdated by the time a decision is

⁸⁴ See *supra* n.16.

⁸⁵ Request for Rehearing at 35 n.104.

⁸⁶ See *Oglala Sioux Tribe v. U.S. Nuclear Regul. Comm’n*, 45 F.4th 291, 301 (D.C. Cir. 2022) (citing *NRDC*, 879 F.3d at 1211); see also *Friends of the River*, 720 F.2d at 106-08 (including the required analysis in a publicly accessible order and opinion “composed after due investigation and before the matter was brought to court” rendered a remand to supplement the EIS “pointless” and an “insistence on form”).

⁸⁷ *Friends of the River*, 720 F.2d at 109.

⁸⁸ 40 C.F.R. § 1502.9(c)(1).

made.”⁸⁹ Rather, the new information must reveal “a seriously different picture of the environmental landscape” than what was considered in the existing NEPA analysis.⁹⁰

Here, as explained in the Remand Order, the Commission responded to comments regarding Rio Grande’s air modeling by soliciting additional information from Rio Grande.⁹¹ That information was provided and made publicly available for review and comment.⁹² And the information was subsequently incorporated in and analyzed in the Commission’s publicly available Remand Order.⁹³ This order of events, as the D.C. Circuit has rightfully recognized, does not trigger unproductive and iterative supplementation that is focused entirely on form rather than substance.⁹⁴

The Commission similarly asked for updated Pipeline Project air emissions estimates from Rio Bravo.⁹⁵ When responding, Rio Bravo identified and corrected a mathematical error in the FEIS and EA tables for its pipeline and aboveground facility construction.⁹⁶ Upon receiving this information, the Commission appropriately analyzed

⁸⁹ *Marsh*, 490 U.S. at 373 (agencies “need not supplement an EIS every time new information comes to light after the EIS is finalized.”) *see also New Mexico ex rel. Richardson v. Bureau of Land Mgmt.*, 565 F.3d 683, 708 (10th Cir. 2009) (“[E]very change however minor will not necessitate a new substantive analysis and repetition of the EIS process. To make such a requirement would lead agencies into Xeno’s paradox, always being halfway to the end of the process but never quite there.”).

⁹⁰ *City of Olmstead Falls, Ohio v. F.A.A.*, 292 F.3d 261, 274 (D.C. Cir. 2013) (internal quotation marks omitted); *see also Blue Ridge Environmental Defense League v. U.S. Nuclear Regul. Comm’n*, 716 F.3d 183, 196 (D.C. Cir. 2013) (“New and significant information presents a seriously different picture of the environmental impact of the proposed project from what was previously envisioned.”) (internal quotation marks omitted).

⁹¹ *See* Remand Order at P 137; *see also* Environmental Information Request of FERC, Docket No. CP16-454-000 (Jan. 6, 2023).

⁹² *See* Remand Order at P 137.

⁹³ *See* Remand Order at P 151 & n.330.

⁹⁴ *Friends of the River*, 720 F.2d at 108.

⁹⁵ Remand Order at P 138, n.317.

⁹⁶ *See* Response of Rio Bravo Pipeline Company, LLC to February 15, 2023 Environmental Information Request, at Table 1-1, Docket Nos. CP20-481-000, *et al.*, (Feb. 24, 2023).

the changes in its Remand Order.⁹⁷ There, the Commission explained that although there were changes in emissions estimates, the updated estimates would result in only temporary, minimal, and localized air emissions that would not result in any significant air impacts for any environmental justice communities and would not cause or contribute to an expected exceedance of the National Ambient Air Quality Standards (“NAAQS”) for any county crossed by the pipeline.⁹⁸ This aligns with the conclusions reached in both the FEIS and EA⁹⁹—thus, the new information supplied did not amount to significant new information revealing “a seriously different picture of the environmental landscape” than what the Commission had already considered.¹⁰⁰ Without any significant change in environmental impact, the Commission did not need to prepare any supplemental NEPA document.

2. The Commission Sufficiently Explained Its Updated Environmental Justice Analysis and No SEIS is Required.

Movants contend that between the FEIS and the Remand Order, the Commission undertook a “complete reversal of position” with regard to potential impacts on environmental justice communities, and that such a reversal “triggers the need for an SEIS.”¹⁰¹ But this is simply not the case for the Pipeline Project.¹⁰² This sort of iterative documentation is unnecessary where: (1) the Commission solicited additional information from Rio Bravo regarding potential environmental justice impacts, (2) Rio Bravo provided

⁹⁷ Remand Order at P 138, n.317.

⁹⁸ *Id.* at PP 138, n.317, 172.

⁹⁹ FEIS at ES-12; EA at 26, 28.

¹⁰⁰ *City of Olmstead Falls, Ohio*, 292 F.3d at 274.

¹⁰¹ Request for Rehearing at 36.

¹⁰² This also is not the case for the Terminal. Rio Bravo understands that Rio Grande will be responding to the Movants’ incorrect assertion that an SEIS was required.

that additional information in a publicly accessible format, and (3) the Commission incorporated and analyzed that information in a publicly accessible order, issued with further opportunity for review and challenge.¹⁰³

In the publicly available Remand Order, the Commission exhaustively explained the months of environmental justice analysis conducted in order to address the issues on remand from the D.C. Circuit. Moreover, the underlying environmental justice information and data, provided to the Commission by Rio Bravo, was similarly available for public review and comment. The combination of these two facts—the Commission’s reliance on publicly available supplemental information to inform a subsequent public record of decision—strongly support the Commission’s decision not to issue an SEIS.¹⁰⁴

With respect to environmental justice communities, the FEIS analyzed the potential *significance* of impacts on environmental justice communities, and the Commission determined that “[a]side from temporary, minor traffic delays during peak construction times, the pipeline facilities are not expected to have disproportionate, adverse effects on minority and low-income residents in the area.”¹⁰⁵ The D.C. Circuit did not disturb this conclusion. The court’s instruction on remand, rather, was for the Commission to determine the extent to which the environmental justice analysis in the FEIS needed to be updated in order to analyze potential effects on environmental justice communities beyond the two-mile radius considered in the FEIS, and if so, to undertake that updated analysis.¹⁰⁶

¹⁰³ See *supra* nn.14-18 and accompanying text.

¹⁰⁴ See, e.g., *NRDC*, 879 F.3d at 1210-12; *Friends of the River*, 720 F.2d at 106.

¹⁰⁵ FEIS at 4-238.

¹⁰⁶ See *Vecinos*, 6 F.4th at 1330-31.

In response to the D.C. Circuit remand, Commission Staff requested, and Rio Bravo publicly filed, additional documentation demonstrating expanded environmental justice analysis for the Pipeline Project and its various aboveground facilities.¹⁰⁷ This documentation reflected an expanded environmental justice analysis for block groups within 50 kilometers of the Pipeline Project's compressor station, block groups within one mile of the other aboveground facilities, and all block groups crossed by the permanent Pipeline Project right-of-way. Further, Rio Bravo identified minority and low-income populations applying the "50 percent" and the "meaningfully greater" analysis methods and the "low-income threshold criteria" method to determine if environmental justice communities are present in the Pipeline Project area. Once again, the Commission also took the unprecedented step of soliciting public comment on Rio Bravo's responses.

The Remand Order incorporates the expanded environmental justice data provided by Rio Bravo and, accordingly, reflects a sufficiently expanded environmental justice analysis,¹⁰⁸ the results of which do not materially deviate from the Commission's determinations in the FEIS. For the Pipeline Project's aboveground facilities (*i.e.*, the compressor station, meter stations, and contractor yards) the Commission determined that even in light of the updated and expanded geographic reach of the environmental justice assessment, as described above, there would be no anticipated significant impacts

¹⁰⁷ See, e.g., Response to January 9, 2023 Environmental Information Request of Rio Bravo Pipeline Company, LLC, Docket Nos. CP16-455-000, *et al.* (Jan. 19, 2023); Response to December 9, 2022 Environmental Information Request of Rio Bravo Pipeline Company, LLC, Docket Nos. CP16-455-000, *et al.* (Dec. 29, 2022); Response to May 2, 2022 and May 10, 2022 Environmental Information Requests of Rio Bravo Pipeline Company, LLC, Docket Nos. CP16-455, *et al.* (June 1, 2022) ("Rio Bravo's June 1, 2022, Response").

¹⁰⁸ See Remand Order at PP 179, 205 and Appx. B (describing the environmental justice community block groups identified as part of the expanded pipeline environmental justice analysis, and presenting updated tables and figures displaying the same).

(cumulative or otherwise) on environmental justice communities related to visual resources, air quality, or noise.¹⁰⁹ With respect to air quality impacts, the Commission emphasized that the aboveground pipeline facilities would not cause exceedance of NAAQS.¹¹⁰ Movants contend that the lack of any NAAQS exceedance is not dispositive with respect to disproportionate impacts to environmental justice communities, but NAAQS in fact represent a criteria, with an adequate margin of safety, requisite to protect public health¹¹¹ and thus provide a reasonable gauge for air-quality-related impacts. The Commission similarly found the potential environmental justice-related impacts of the Pipeline Project on wetland resources, recreational and subsistence fishing, tourism, socioeconomics, road traffic, noise, air quality, visual resources would not be significant, or would otherwise be sufficiently minimized or mitigated.¹¹² Thus, while the Commission acknowledges that the Pipeline Project will have “a range of impacts” on environmental justice communities,¹¹³ none of those potential impacts were found to be significant.¹¹⁴

The Commission’s consistent finding of no significant impacts on environmental justice communities related to the Pipeline Project squarely rebuts the assertion that “new

¹⁰⁹ *Id.* at PP 169-77.

¹¹⁰ Indeed, as the Commission noted, the radius of impact for operational air emissions from the Pipeline Project’s compressor station is only 0.6 mile. *Id.* at P 173.

¹¹¹ *See* 42 U.S.C. § 7409(b)(1).

¹¹² Remand Order at PP 181-202. The Commission concluded that “[e]nvironmental justice concerns are not present for other resource areas such as geology, groundwater, wildlife, land use, surface water, or cultural resources[.]” *Id.* at P 110 & n.248.

¹¹³ *Id.* at P 203.

¹¹⁴ *See id.* at P 206 (“Project-related impacts associated with wetlands, surface water, recreational and subsistence fishing, tourism, socioeconomics, traffic, visual resources, noise, and air quality would be less than significant.”); *id.* at P 110 (“Environmental justice concerns are not present for other resource areas such as geology, groundwater, wildlife, land use, surface water, or cultural resources, *due to the minimal overall impact the project would have on environmental justice communities.*” (emphasis added)).

information,” presumably meaning information gathered as part of the expanded environmental justice analysis discussed in the Remand Order, “directly contradicts previously published NEPA documents.”¹¹⁵ As such, with respect to the Pipeline Project, the Remand Order does not represent any kind of reversal from the FEIS, never mind the “complete reversal” alleged by Movants here; and neither did the Commission find significant impacts disproportionately borne by environmental justice communities. In the absence of any real divergence between the FEIS and Remand Order with respect to the Pipeline Project, and in light of the publicly available and updated analysis of environmental justice impacts related to the Pipeline Project contained in the Remand Order, the Commission’s updated environmental justice analysis undermines Movants’ request for an SEIS.

3. *The Identification of New Environmental Justice Communities Does Not Trigger the Need for a Supplemental NEPA Document.*

a) *No stakeholders were “shut out” of the process.*

The Remand Order identified an additional 367 environmental justice communities that could be impacted by the projects—282 communities implicated by the Terminal and 85 implicated by the Pipeline Project. Movants argue that these communities were not “provided the opportunity to intervene into these dockets, protest, or request rehearing,”

¹¹⁵ Request for Rehearing at 36 & n.107 (citing *Native Ecosystems Council v. Tidwell*, 599 F.3d 926, 938 (9th Cir. 2010)). District courts applying *Tidwell* have limited its relevance to circumstances where (unlike here) there is a contradiction between previous analysis and new data with regard to impacts and significance. See *Deer Creek Valley Nat. Res. Conservation Ass’n v. U.S. Bureau of Land Mgmt.*, No. 1:12-CV-1596-CL, 2014 WL 458288, at *11 (D. Or. Feb. 4, 2014) (distinguishing *Tidwell* in case where new information “merely provide[d] a more complete survey of the analyzed area,” making the agency’s “decision not to conduct an additional NEPA assessment . . . reasonable”); *Cascadia Wildlands v. Bureau of Land Mgmt.*, No. 6:12-CV-00095-AA, 2012 WL 6738275, at *11 (D. Or. Dec. 21, 2012) (requiring supplementation, and citing *Tidwell*, where new survey information “reveal[ed],” contrary to prior environmental assessment, that potential cumulative impacts of project on vulnerable species “could result in irreparable injury to that species”). As noted, such contradiction is absent here.

and that supplementation and the associated public outreach procedures are necessary to address these concerns.¹¹⁶ But members of the public, including those in environmental justice communities, have been afforded ample opportunity to participate in the review process, which has been ongoing, in one form or another, since the Pipeline Project and Terminal were initially proposed more than seven years ago.¹¹⁷ The extensive record in these proceedings, replete with information pertaining to almost every aspect of the projects' development, operations and impacts *prior* to the November 22 Order, has been bolstered by the additional environmental information requests and numerous public comments following the D.C. Circuit's remand. Numerous stakeholders (including Movants) have been actively involved in these proceedings from the outset. Movants have not shown (and cannot show) that the simple identification of additional potential environmental justice communities necessitates an SEIS. The public, including individuals in the identified environmental justice communities, had "meaningful information on which to comment."¹¹⁸

¹¹⁶ Request for Rehearing at 36 (citing 18 C.F.R. § 380.10(a)(1)(i)).

¹¹⁷ Movants claim that the Commission failed to consult with the Carrizo Comecrudo Tribe of Texas. Rehearing Request at 11, n.16. Rio Bravo has already made clear on the record that, "[a]lthough this tribe is not federally recognized, the Commission nonetheless solicited comments from interested Native American tribes and the public on potential effects to historic properties." Response of Rio Bravo Pipeline Company, LLC to Comments on Environmental Assessment at 11, Docket No. CP20-481-000 (Feb. 4, 2021) (citations omitted). As Rio Bravo noted, "[i]n any event, the EA confirmed that no burial sites, village sites, or sacred sites were identified. Against the backdrop of these thorough investigations and consultations, the EA reasonably concluded that historic properties would not be adversely affected, and commenters have not identified any significant new information or circumstances that suggest otherwise." *Id.*

¹¹⁸ See *New Mexico ex rel. Richardson*, 565 F.3d at 708. Additionally, the Commission established the Office of Public Participation ("OPP") in 2021 with the objective of providing direct assistance to members of the public, including those in environmental justice communities, with, among other things, interventions and the filing of comments and requests for rehearing. See Office of Public Participation Report, Docket No. AD21-9 (June 24, 2021). Such direct assistance through the OPP has been available since before the Commission began sending its remand-related environmental information requests, which further bolsters the fact that potentially interested members of the public and those in environmental justice communities have had both the opportunity and resources to meaningfully participate in this proceeding.

The result of this entire remand review process, as Chairman Phillips observes in his concurrence, is a “record assembled throughout the last year [which] is an appropriate middle ground that represents an adequate basis to fully consider the issues the Court remanded to us in *Vecinos* nearly *two years ago*.”¹¹⁹ The Commission similarly observes as much in the Remand Order, finding that the proceeding had “giv[en] all interested parties a full and complete opportunity to participate through evidentiary submission in written form.”¹²⁰ And, as the Commission noted in rejecting calls for further evidentiary hearings, “the existing written record is extensive and provides a sufficient basis to resolve the issues and comments in this proceeding.”¹²¹

In light of the above, it is not accurate to suggest that (unidentified) individuals or groups in environmental justice communities were “effectively shut out of this process.” Those individuals and groups, rather, had ample opportunity to seek leave “to intervene into these dockets, protest, or request rehearing.”¹²² Movants, for their part, do not even attempt to explain *why* they believe those in particular environmental justice communities were “shut out”.¹²³ Given the Commission’s finding—after extensive public engagement and a lengthy analysis of the impacts on newly identified communities—that there will be no significant impacts related to the Pipeline Project, the Commission should reject

¹¹⁹ See Remand Order at P 3 (Phillips, Chairman, concurring) (emphasis added).

¹²⁰ Remand Order at P 23.

¹²¹ *Id.*

¹²² Request for Rehearing at 36.

¹²³ See *NRDC*, 879 F.3d at 1210 (finding “nothing to be gained by remanded the matter to the [agency]” where the agency “came to the same decision after it had considered the supplemental information”); see also *Oglala Sioux Tribe*, 45 F.4th at 301 (rejecting request for supplementation where requesting party “does not dispute the reasonableness or accuracy of the [agency]’s explanations”).

Movants' argument that supplementation is required simply because new environmental justice communities were identified.¹²⁴

b) *The Commission reasonably exercised its discretion to decline to hold further public meetings.*

Movants also fault the Commission for declining requests to hold more public meetings for the Pipeline Project and the Terminal.¹²⁵ The Commission's decision to decline to hold further town-hall-style meetings was reasonable under the circumstances.

As the Commission notes, it has discretion in determining whether and to what extent additional briefing or public comment is necessary to supplement the factual record.¹²⁶ Courts have endorsed this discretion.¹²⁷ The Commission's general obligation to "inquire into all relevant facts" does not require holding a record "open indefinitely," allowing a party indefinite time to "figure[e] out what its story really is."¹²⁸ Here, in declining the requests for additional public meetings, the Commission determined that "the record" as it stood was "sufficient . . . to address the issues identified by the court [on remand]."¹²⁹ The Commission emphasized that (1) the public was provided "additional opportunities . . . to comment and respond to information filed by Rio Grande and Rio

¹²⁴ See Remand Order at PP 169-202, 205-06.

¹²⁵ See Request for Rehearing at 38.

¹²⁶ See Remand Order at P 85 & n.193 (citing *Spire STL Pipeline LLC*, 181 FERC ¶ 61,232 at PP 18-20 (2022), and *NEXUS Gas Transmission, LLC*, 172 FERC ¶ 61,199 (2020)); see also 18 C.F.R. § 385.716(c) (The Commission "may" reopen the record if it "has reason to believe that [doing so] is warranted by any changes in conditions of fact or of law").

¹²⁷ See Remand Order at P 85 & n.194 (citing *SFPP, L.P. v. FERC*, 967 F.3d 788, 797 (D.C. Cir. 2020), *cert. dismissed*, 141 S. Ct. 2170 (2021)); see also *Cities of Campbell v. FERC*, 770 F.2d 1180, 1191 (D.C. Cir. 1985) ("Reopening an evidentiary hearing is a matter of agency discretion, . . . and is reserved for extraordinary circumstances[.]") (citations omitted).

¹²⁸ See *Cities of Campbell*, 770 F.2d at 1191-92.

¹²⁹ Remand Order at P 85.

Bravo related to the issues before [the Commission] on remand,” and (2) the Commission “explicitly solicited comments on the responses provided by Rio Grande and Rio Bravo to Commission Staff’s information requests and received over 150 comments.”¹³⁰ Such opportunities to participate compound the ample opportunities provided to the public prior to the remand.¹³¹ The Commission’s rationale is sufficient to show that it neither abused its discretion or acted arbitrarily.¹³²

Movants, for their part, do not actually identify what information could be provided by additional public meetings that is otherwise absent from the existing factual record. Nor do Movants actually specify *which* “significant new findings of impact” would have been contested at a hypothetical public hearing.¹³³ Thus, Movants’ requested public meetings would likely do nothing more than present the Commission with the same information it already considered when preparing the Remand Order.¹³⁴ Or, worse, the meetings would be yet another opportunity to prolong review of the projects to allow particular parties to “figure[e] out what its story really is.”¹³⁵ Neither outcome advances the goals of NEPA or the NGA.

¹³⁰ *Id.*

¹³¹ *Id.*

¹³² *See SFPP, L.P.*, 967 F.3d at 797.

¹³³ *See Request for Rehearing* at 38.

¹³⁴ *Cf. NRDC*, 879 F.3d at 1210 (declining to remand when nothing would be gained by requiring the agency “consider the same information again”).

¹³⁵ *See Cities of Campbell*, 770 F.2d at 1191-92.

c) *The Commission provided sufficient accommodations for Spanish-speaking persons.*

Movants contend that the Commission failed to meet its environmental justice mandate by failing “to provide any written materials in Spanish.”¹³⁶ Notably, Movants do not even attempt to specify which documents should have been translated to accommodate Spanish-speaking persons. But more importantly, and contrary to Movants’ characterization of the total exclusion of Spanish-speaking persons, the Commission did not ignore the potential need for language accommodation. As the Remand Order observes, the Commission, Rio Bravo, and Rio Grande held public scoping and comment meetings where materials were provided in both English and Spanish.¹³⁷ And at the public scoping and comment meetings held in Port Isabel, the city that Movants highlight in their Request for Rehearing,¹³⁸ both English- and Spanish-speaking representatives were present to converse one-on-one with stakeholders in attendance in order to accommodate participation by Spanish language speakers in the NEPA process.¹³⁹ Further, the Commission previously noted that “very few of the Spanish language materials that were made available were utilized by attendees,” which reasonably informed its subsequent decision that “translation of the draft EIS into Spanish was not necessary.”¹⁴⁰ The Commission has discretion in the “almost endless series of judgment calls” that it must

¹³⁶ See Request for Rehearing at 39 (emphasis omitted).

¹³⁷ See Remand Order at P 85 & n.195; FEIS at 4-236 to 4-237.

¹³⁸ See Request for Rehearing at 39 (describing the language proficiencies of the population of Port Isabel).

¹³⁹ See Remand Order at P 85 & n.195; FEIS at 4-236 to 4-237; see also *id.* Vol. III, Part 6, at 66.

¹⁴⁰ FEIS, Vol. III, Part 6, at 66.

make throughout the NEPA process,¹⁴¹ and the record reflects that the Commission took reasonable measures to accommodate Spanish-speaking persons and communities.

Rather than dispute these facts, Movants point to the Commission's purported failure to adhere to a litany of executive orders and guidance documents "focused on language access and environmental justice."¹⁴² But the Commission met, if not exceeded, the recommendations of those documents. For example, Movants note CEQ guidance recommending agencies "consider translating documents into language other than English where appropriate and practical."¹⁴³ As noted above, though, Project-related materials in Spanish and access to English- and Spanish-speaking representatives were available at public scoping and comment meetings. For another, Movants cite executive orders recommending that agencies, as examples, take steps so that those with limited English proficiency "can meaningfully access the agency's programs and activities,"¹⁴⁴ and "continue to remove barriers that affect members of communities with environmental justice concerns, including those related to . . . language access."¹⁴⁵ Again, the

¹⁴¹ *Coal. On Sensible Transp., Inc. v. Dole*, 826 F.2d 60, 66 (D.C. Cir. 1987) ("The NEPA process involves an almost endless series of judgment calls[,] . . . [and] [t]he line-drawing decisions necessitated by this fact of life are vested in the agencies . . .").

¹⁴² See Request for Rehearing at 39-40 & nn.126-28.

¹⁴³ *Id.* at 39 n.126 (quoting Council on Environmental Quality, Environmental Justice: Guidance under the National Environmental Policy Act at 16 (Dec. 1997)). Movants also quote the Interagency Working Group on Environmental Justice & NEPA Committee, *Promising Practices for EJ Methodologies in NEPA Reviews* (2016) ("*Promising Practices*") for the similar point that "agencies should prepare NEPA documents in plain, clear language and provide multiple forms of communication (e.g. written, oral, pictorial) . . . to account for limited English proficiency." *Id.* (quoting *Promising Practices*, at 10).

¹⁴⁴ *Id.* at 40 n.127 (quoting Exec. Order No. 13,166, *Improving Access to Services for Persons with Limited English Proficiency* (Aug. 16, 2000)).

¹⁴⁵ *Id.* (quoting Exec. Order No. 14,096, *Revitalizing Our Nation's Commitment to Environmental Justice for All* (Apr. 26, 2023)).

Commission made efforts to accommodate language access concerns and only declined to make further accommodations after very few persons took advantage of these measures.¹⁴⁶

Movants effectively seek to expand the D.C. Circuit's environmental justice-related holding beyond what the panel required—*e.g.*, arguing for the translation of any and every document, no matter the extent to which such efforts yield actionable information. But as the D.C. Circuit observed, the Commission's burden under NEPA, even for environmental justice impacts, is to establish a rational connection between the facts found and choices made, and articulate a satisfactory explanation for its action.¹⁴⁷ The Commission here has taken reasonable measures to obtain the information necessary to rationally analyze environmental justice impacts consistent with FERC policy and the D.C. Circuit's instructions for remand, which is certainly sufficient.

4. The Commission Properly Addressed Environmental Justice Issues in Its NGA Section 3 and 7 Determinations and Reached the Same Outcome.

Movants next contend that the Terminal and the Pipeline Project are not in the public interest, as required by the NGA, because the projects, as Movants see it, disproportionately impact environmental justice communities.¹⁴⁸ As an initial matter, the Commission has previously determined that the Terminal is not inconsistent with the public interest and that the Pipeline Project is required by the public convenience and necessity.¹⁴⁹ And as explained above, the Commission determined that any potential impacts on

¹⁴⁶ See *supra* n.140 and accompanying text.

¹⁴⁷ See *Vecinos*, 6 F.4th at 1327-28 (citing *Birckhead v. FERC*, 925 F.3d 510, 525 (D.C. Cir. 2019) (*per curiam*)).

¹⁴⁸ See Request for Rehearing at 40-42.

¹⁴⁹ See November 22 Order; Order on Rehearing.

environmental justice communities associated with the Pipeline Project would not be significant, undercutting Movants' arguments that the adverse impacts of the Pipeline Project outweigh the benefits that the Commission has already found to be present. In fact, the D.C. Circuit declined to vacate the November 22 Order and Order on Rehearing precisely because it found it "reasonably likely the Commission could redress its failure of explanation with regard to its analyses of the projects' impacts on climate change and environmental justice communities, and its determinations of public interest and convenience under Sections 3 and 7 of the NGA, while reaching the same result."¹⁵⁰

The Commission's subsequent analysis and its Remand Order bear out this prediction. While environmental justice concerns are assuredly important, the Commission has examined those concerns thoroughly in these proceedings and appropriately considered and weighed them in conjunction with "the principal purpose" of the NGA to encourage the orderly development of plentiful supplies of . . . natural gas at reasonable prices."¹⁵¹ The Commission's Remand Order fulfills the Commission's statutory obligations by balancing the minimal potential impacts posed by the Terminal and Pipeline Project with their benefits, including immense economic and employment benefits.¹⁵²

¹⁵⁰ *Vecinos*, 6 F.4th at 1332.

¹⁵¹ *NAACP v. FPC*, 425 U.S. 662, 669-70 (1976); *see also* 15 U.S.C. § 717(a) ("[I]t is declared that the business of transporting and selling natural gas for ultimate distribution to the public is affected with a public interest, and that Federal regulation in matters relating to the transportation of natural gas and the sale thereof in interstate and foreign commerce is necessary in the public interest.").

¹⁵² Remand Order at P 30 (finding that, with the proposed amendment, "the project's benefits will continue to outweigh any adverse economic effects on landowners and surrounding communities."); *see also* EA at 18-19 (listing various socioeconomic benefits of the Pipeline Project, including increased employment opportunities and an increase in state and local government revenues); FEIS at 5-14 ("Construction of the Rio Grande LNG Project would result in positive impacts due to increases in construction jobs, payroll taxes, purchases made by the workforce, and expenses associated with the acquisition of material goods and equipment. Operation of the Project would have a positive effect on the local governments' tax revenues due to the increase in property taxes that would be collected").

C. NEPA Does Not Require the Commission to Supplement Its NEPA Analysis to Address the Late-Arriving VCP Alternative.

Movants claim that the Commission must supplement its NEPA analysis to consider a supposed “alternative” to Rio Bravo’s second pipeline—an expansion of the Valley Crossing Pipeline (“VCP”)—which Movants say became available in March 2021 when Annova LNG cancelled its project and no longer needed to go through with a planned VCP expansion. Movants’ argument fails to satisfy the legal standard for supplementing a NEPA document, misstates numerous facts, ignores the multiple reasons stated in the Remand Order for why the VCP alternative is infeasible and speculative, and misconstrues the Commission’s role in reviewing proposed projects.

Notably, the Commission is not the first tribunal to reject Movants’ arguments about the VCP alternative. Project opponents (including one of the Movants) concurrently petitioned the U.S. Army Corps of Engineers (“Corps”) to consider the VCP alternative as the Corps was processing Rio Bravo’s and Rio Grande’s requests for authorization under the Clean Water Act and Rivers and Harbors Act. The Corps rejected the VCP alternative on its merits under the even more exacting and substantive standards of the Clean Water Act for many of the same reasons discussed in the Remand Order and below, and the Fifth Circuit upheld that rejection.¹⁵³

1. The Supposed VCP Alternative Is Not “Significant New Information” Requiring Any Supplemental NEPA Analysis.

The Remand Order appropriately evaluated the potential for a VCP alternative in the context of NEPA regulations, which contemplate supplementing a NEPA document when there are “significant new circumstances or information relevant to environmental

¹⁵³ *Shrimpers & Fishermen of the RGV v. U.S. Army Corps of Eng’rs*, 56 F.4th 992, 998-99 (5th Cir. 2023).

concerns and bearing on the proposed action or its impacts.”¹⁵⁴ However, Movants are wrong that the VCP alternative satisfies this standard. Under the regulation’s plain language, new information must be significant and must bear upon the “*proposed action* or its impacts” before supplementation is warranted.¹⁵⁵ This standard simply does not apply to new alternatives, particularly where, as here, the alternative does not implicate any environmental impacts beyond those already considered. In *North Idaho Community Action Network v. U.S. Department of Transportation*, for example, a new alternative that came to light after the agency completed its NEPA analysis did not constitute new information or a new circumstance because it did not implicate any environmental impacts that were not already appreciated or considered.¹⁵⁶ Here, the proposed action analyzed in the Commission’s review of the Amendment Application as documented in the December 2020 EA remained unchanged, and Movants fail to identify any impacts that the Commission has not already appreciated or considered. Thus, the Commission reasonably concluded that Movants had not shown that cancellation of an unrelated LNG terminal constituted “significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts” that merited supplemental NEPA analysis.¹⁵⁷

The single case Movants cite, *Alaska Wilderness Recreation and Tourism Association v. Morrison*, does not support their supplementation argument and is readily

¹⁵⁴ Remand Order at P 73 & n.179 (citing 40 C.F.R. § 1502.9(c)(1)).

¹⁵⁵ 40 C.F.R. § 1502.9(d)(1)(ii) (emphasis added).

¹⁵⁶ 545 F.3d 1147, 1155 (9th Cir. 2008); *see also Marsh*, 490 U.S. at 374-75 (requiring a supplemental NEPA analysis only if the new information is sufficient to show environmental effects “in a significant manner or to a significant extent not already considered”).

¹⁵⁷ Remand Order at P 73 (citing 40 C.F.R. § 1502.9(c)(1)).

distinguishable. *Alaska Wilderness* resulted from the U.S. Forest Service’s cancellation of its 50-year timber sales contract with the Alaska Pulp Corporation (“APC”), and its subsequent decision to offer uncut timber formerly reserved for APC on an independent sales basis.¹⁵⁸ The dispute centered on whether the Forest Service must, under NEPA or the Alaska National Interests Land Conservation Act, conduct a formal environmental review before proceeding with the timber sales.¹⁵⁹ Because the Forest Service had crafted all of its alternatives with a primary goal of meeting volume requirements under the terminated APC sale contract,¹⁶⁰ when the agency subsequently cancelled the contract, the timber volume requirements previously considered by the agency “ha[d] disappeared,” and no longer governed what action the agency needed to take.¹⁶¹ Here, by contrast, there has been no change in Rio Bravo’s primary goal, the purpose and need of the Pipeline Project, or in the gas volumes needed to satisfy Rio Bravo’s contracts or the purpose of the Pipeline Project. Furthermore, in *Alaska Wilderness Recreation*, the Forest Service had rejected various alternatives on the basis that they would not meet the requirements of the very contract that was subsequently cancelled.¹⁶² But again, that scenario does not apply to Rio Bravo because there has been no change in the purpose and need of the Pipeline Project or in the demand for firm transportation service from the anchor shipper on the Pipeline Project. Moreover, as the Commission explained in detail in the Remand Order and in the

¹⁵⁸ 67 F.3d 723, 725 (9th Cir. 1995).

¹⁵⁹ *Id.* at 726.

¹⁶⁰ *Id.* at 728.

¹⁶¹ *Id.* at 728, 730-31.

¹⁶² *Id.* at 729-30.

EA, there is no evidence that the VCP alternative was feasible or could meet the purpose and need for the Pipeline Project.¹⁶³

As discussed in Section II.B.3, supplementation is not required every time new information comes to light—otherwise agency decision-making would be rendered “intractable, always awaiting updated information only to find the new information is outdated by the time a decision is made.”¹⁶⁴ Because the cancellation of an unrelated LNG terminal that was to be supplied by a completely different pipeline system owned by a different company does not provide “a seriously different picture of the environmental landscape” than what was considered in the existing NEPA analysis,¹⁶⁵ the Commission was right to reject Movants’ request for supplementation.

2. The Commission Reasonably Eliminated the VCP Alternative as Unreasonable, Infeasible, and Speculative.

Movants also assert that the Commission is obligated to supplement its NEPA analysis to consider the VCP alternative, but this is wrong because NEPA only requires that agencies review “reasonable” alternatives. For many reasons, the VCP alternative is not “reasonable.”¹⁶⁶

¹⁶³ Remand Order at P 72; EA at 49 (“[W]e do not consider the Valley Crossing Pipeline to be a viable system alternative to the Project Amendment[.]”).

¹⁶⁴ *Marsh*, 490 U.S. at 373.

¹⁶⁵ *City of Olmstead Falls, Ohio*, F.3d at 274; *Blue Ridge Environmental Defense League*, 716 F.3d at 196.

¹⁶⁶ See 40 C.F.R. § 1502.14(a); *se also, e.g., Ctr. for Biological Diversity*, 2023 WL 3470860, at *2 (“Because some alternatives will be impractical or fail to further the proposed action’s purpose, agencies may reject unreasonable alternatives after only brief discussion.”); *Westlands Water Dist. v. U.S. Dep’t of Interior*, 376 F.3d 853, 871 (9th Cir. 2004) (finding that agency has discretion to reject alternatives deemed ineffective for accomplishing project’s goals); *Citizens’ Comm. to Save Our Canyons v. U.S. Forest Serv.*, 297 F.3d 1012, 1031 (10th Cir. 2002) (“Alternatives that do not accomplish the purpose of an action are not reasonable, and need not be studied in detail by the agency”) (internal quotation marks omitted).

More specifically, an alternative is “reasonable” only if it is “practical or feasible from the technical and economic standpoint and using common sense.”¹⁶⁷ And an alternative is only “feasible” and “practical” if it can be accomplished without unreasonable cost or logistical complications.¹⁶⁸ The Commission confirmed the EA’s description of the purpose of the Amendment Application, which is to afford Rio Bravo with flexibility and efficiency in satisfying the shipper’s requirements by supplying gas to the Terminal.¹⁶⁹ The Commission acknowledged and briefly summarized Rio Bravo’s explanations for why the VCP alternative was infeasible, impractical, and would not afford Rio Bravo the flexibility or efficiency Rio Bravo seeks on its way to ultimately concluding that the VCP alternative was not “significant new information” meriting any supplemental NEPA analysis,¹⁷⁰ and Movants fail to refute any of these core reasons.

For example, although the Remand Order clearly articulated that the VCP alternative was infeasible and impractical because it would impair engineering and design considerations,¹⁷¹ Movants offer no responsive evidence or argument. For instance,

¹⁶⁷ Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations, 46 Fed. Reg. 18,026, 18,027 (Mar. 23, 1981). See, e.g., *Myersville Citizens for a Rural Cmty., Inc. v. FERC*, 783 F.3d 1301, 1323 (D.C. Cir. 2015) (“An alternative is ‘reasonable’ if it is objectively feasible as well as reasonable in light of [the agency’s] objectives.”) (internal quotation marks omitted); *City of Grapevine, Tex. v. Dep’t of Transp.*, 17 F.3d 1502, 1506 (D.C. Cir. 1994) (noting that the “range of alternatives that the agency must consider is not infinite” but rather includes only “‘feasible’ or ‘reasonable’ alternatives to the proposed action”).

¹⁶⁸ See, e.g., *Sabal Trail*, 867 F.3d at 1369 (discussing the Commission’s rejection of an alternative as “infeasible because it would cost an additional two billion dollars”); *Japanese Vill., LLC v. Fed. Transit Admin.*, 843 F.3d 445, 464 (9th Cir. 2016) (affirming agency’s rejection of an alternative construction technique for underground light rail system as infeasible due to certain logistical considerations); *WildEarth Guardians v. Nat’l Park Serv.*, 703 F.3d 1178, 1182 (10th Cir. 2013) (affirming agency’s rejection of an alternative management plan because, among other things, it would be “infeasible” because it would be “expensive and time-consuming”).

¹⁶⁹ See Remand Order at P 70; EA at 2.

¹⁷⁰ Remand Order at PP 68, 72-73.

¹⁷¹ *Id.* at P 68, n.162.

Movants do not even attempt to address or rebut the complications that would arise from distributing gas between two pipelines under the VCP alternative or the problems Rio Bravo identified that doing so would introduce related to system optimization, efficiency, operational flexibility, and overall reliability. Nor do Movants address the Commission's references to the timing and cost implications of the VCP alternative that "render the alternative logistically impractical,"¹⁷² a conclusion similarly reached in the appeal over the Corps permits.¹⁷³ Not only was the Commission correct in noting that Movants failed to show that the VCP alternative was significant new information requiring supplemental NEPA review,¹⁷⁴ but the record contains ample evidence demonstrating numerous ways in which the VCP alternative is infeasible and unreasonable.

The proposed VCP alternative does not trigger any NEPA supplementation obligation because that "alternative" relies on the speculative actions of third parties.¹⁷⁵ An agency can eliminate an alternative from consideration when it is uncertain, speculative, and has barriers to its implementation.¹⁷⁶ The Commission noted Rio Bravo's previous explanation that the VCP alternative relied on speculative actions of third

¹⁷² *Id.* at P 68, n.163 (citing Response of Rio Bravo Pipeline Company, LLC Docket No. CP16-455-000, *et al.* (Apr. 27, 2021) ("Rio Bravo Apr. 27, 2021 Submission").

¹⁷³ *See Shrimpers & Fishermen of the RGV*, 56 F.4th at 998 (finding the VCP alternative to be impracticable for purposes of the Clean Water Act for cost and logistical reasons because it would require the VCP system itself to be redesigned, which would result in a transportation service rate more than 40% more expensive than Rio Bravo's second pipeline).

¹⁷⁴ Remand Order at P 73.

¹⁷⁵ *Id.* at P 72.

¹⁷⁶ *Westlands Water Dist.*, 376 F.3d at 868 ("The choice of alternatives is 'bounded by some notion of feasibility' and an agency is not required to consider 'remote and speculative' alternatives." (quoting *Vt. Yankee Nuclear Power Corp. v. Natural Res. Def. Council, Inc.*, 435 U.S. 519, 551 (1978))).

parties,¹⁷⁷ and the Commission was correct in explaining that it had no jurisdiction over VCP (an intrastate pipeline not subject to regulation under the NGA) and lacked any evidence that VCP was willing or able to expand to provide sufficient gas to obviate the need for the second Rio Bravo pipeline.¹⁷⁸ Here again, the Fifth Circuit reached a similar conclusion.¹⁷⁹ Movants claim that because FERC previously approved Annova's planned terminal that would utilize new capacity on VCP, Rio Bravo and Rio Grande could undertake the same project and obtain the same firm transportation service.¹⁸⁰ This misstates FERC's role, since it never approved any expansion of VCP capacity, nor could it, since VCP is a non-FERC-jurisdictional, intrastate pipeline.¹⁸¹

Nor are Movants correct that a VCP alternative could provide the same service available on Rio Bravo. Intrastate firm service is not equivalent to interstate firm service—operationally, commercially, or otherwise—a point Rio Bravo explained at length when Movants first proffered the VCP alternative.¹⁸² In addition, the Commission found that VCP lacks any available firm service because it is fully subscribed by end users in

¹⁷⁷ Remand Order at P 68 (citing to Rio Bravo's previous submission explaining why it was speculative and unreasonable to assume that Rio Grande or Rio Bravo could step into the same contract as Annova).

¹⁷⁸ *Id.* at P 72.

¹⁷⁹ See *Shrimpers & Fishermen of the RGV*, 56 F.4th at 999 (finding that the VCP alternative is not available given the lack of any evidence that the developers could demand that VCP become a project applicant and expand as Sierra Club proposed).

¹⁸⁰ Request for Rehearing at 52.

¹⁸¹ *Annova LNG Common Infrastructure, LLC*, 169 FERC ¶ 61,132 at P 4 (2019) ("The terminal will receive natural gas via a tie-in to a non-jurisdictional intrastate natural gas pipeline to be constructed from a receipt point on the existing intrastate pipeline of Valley Crossing Pipeline, LLC[.]").

¹⁸² Rio Bravo Apr. 27, 2021 Submission at 5, 11-12 (discussing general differences in regulation of intrastate and interstate pipelines, limitations on the origin and destination of gas transported on the system, and operating conditions and commitments made to existing customers—including preferential rights of VCP's "foundation customer"—that potentially limit the extent to which VCP could accommodate Rio Grande-specific service needs or requests).

Mexico.¹⁸³ Movants attempt to side-step this reality by saying that FERC had an obligation at least to *ask* if Rio Bravo can secure expansion via a VCP alternative. Movants' apparent suggestion is that Rio Bravo has an inside track to obtaining firm capacity on an expanded version of the VCP because Rio Bravo and VCP have a common ultimate parent company.¹⁸⁴ Not only is this theory born from pure speculation,¹⁸⁵ but Rio Bravo has already given the Commission its answer to this question, explaining that VCP is "engaged in confidential commercial negotiations with several other potential shippers for service that would likewise involve other expansions of VCP facilities," and that "there is no right for RGLNG or any other company not already in negotiations with VCP to simply jump ahead of those other entities in the queue."¹⁸⁶ In fact, those predictions were borne out on January 10, 2022, when Texas LNG Brownsville LLC contracted for an expansion of VCP to obtain a similar volume of gas as had been contemplated for Annova LNG.¹⁸⁷ This further supports the Commission's determination that there is no evidence to suggest that VCP is willing or able to implement Movants' hypothetical alternative.

Movants also claim that historic *actual* usage data on VCP suggests that current contract holders might be willing to relinquish their contracts for firm capacity, thereby

¹⁸³ Remand Order at P 72; *see also Shrimpers & Fishermen of the RGV*, 56 F.4th at 998 (noting VCP's fully subscribed capacity and ability to only provide interruptible service, and affirming that "[t]his alone frustrates the project's purpose, which presumes a consistent supply of gas").

¹⁸⁴ Rehearing Request at 52, 54.

¹⁸⁵ In the *Shrimpers & Fishermen of the RGV* decision, the Fifth Circuit found that there was nothing in the record that would support this claim, which the petitioners "wholly fail[ed] to substantiate." 56 F.4th at 999.

¹⁸⁶ Rio Bravo Apr. 27, 2021 Submission at 12.

¹⁸⁷ Enbridge Inc., Interim Report to Shareholders (Form 10-Q) at 48 (Jun. 30, 2022) (noting that "[o]n January 10, 2022, we executed a precedent agreement with Texas LNG Brownsville LLC (Texas LNG) under which, via an expansion of our Valley Crossing Pipeline we will provide 0.72 bcf/d firm transportation capacity to Texas LNG's proposed LNG liquefaction and export facility in the Port of Brownsville, Texas for a term of at least 20 years.").

making firm capacity available on VCP. Here again, the Remand Order noted Rio Bravo's prior discussion about speculative actions of third parties.¹⁸⁸ As already discussed on the record, Movants' speculation is disproven by market realities—no firm capacity is available on VCP, and Movants do not claim that any owner of that capacity has relinquished its contracts or indicated a willingness or interest in relinquishing them.¹⁸⁹ Movants provide no evidence to support their conjecture that VCP's customers and contractual counterparties might act differently in the future than they have to date.¹⁹⁰ The Commission reasonably concluded there is no available firm capacity on VCP and that Movants had not made the requisite showing to justify the need for supplemental NEPA analysis.¹⁹¹

Furthermore, Movants are wrong that the Remand Order's explanation for rejecting an alternative is insufficient and that the Commission must further supplement its NEPA analysis.¹⁹² To the extent the Commission needed to document the reasons why the VCP alternative was infeasible and unreasonable, it was appropriate for the Commission to do so in the Remand Order.¹⁹³ Indeed, it would be "pointless" to require an agency to go through the process of formally supplementing an EIS simply to answer questions the

¹⁸⁸ Remand Order at P 68 (citing to Rio Bravo's previous submission explaining why it was speculative and unreasonable to assume that Rio Grande or Rio Bravo could step into the same contract as Annova).

¹⁸⁹ Rio Bravo Apr. 27, 2021 Submission at 11.

¹⁹⁰ Notably, Movants' argument reflects a misunderstanding of shippers' need and demand for pipeline capacity. Demand for capacity typically is based on anticipated peak demand, and shippers value the availability of capacity even when not fully utilized.

¹⁹¹ Remand Order at PP 72-73.

¹⁹² Rehearing Request at 53.

¹⁹³ See *Friends of the River* 720 F.2d at 106–08.

agency has already answered—particularly when NEPA does not require detailed analysis of unreasonable or infeasible alternatives.¹⁹⁴

Movants also cannot justify rehearing based upon Commission Staff’s guidance that applicants identify system alternatives in the certificate process.¹⁹⁵ The Commission analyzed Pipeline Project alternatives on a considered and thoughtful basis, both at the outset of the Project (when the Commission first considered VCP as an alternative) and in the Remand Order (where the Commission specifically addressed whether and how the cancellation of the Annova LNG Project impacted the feasibility of a single-pipeline alternative).¹⁹⁶ In both cases, the Commission ultimately determined that VCP is not a feasible system alternative.¹⁹⁷ Movants cannot continue to point towards the Commission’s dismissal of infeasible alternatives as a basis to overturn its decision-making.

¹⁹⁴ See *id.* at 107; see also *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 195 (D.C. Cir. 1991) (“CEQ regulations oblige agencies to discuss only alternatives that are feasible, or (much the same thing) reasonable.”).

¹⁹⁵ FERC, Guidance Manual for Environmental Report Preparation, at 4-1, 4-136 (Feb. 2017). This guidance does not create any legal obligation upon the Commission, *id.* at 1-2, but, in any case, the Commission did not arbitrarily overlook any system alternatives, and Movants did not identify any alternative similar to the VCP alternative they now raise when the FEIS and EA were being prepared.

¹⁹⁶ Remand Order at P 67.

¹⁹⁷ November 22 Order at P 121; Remand Order at P 70; see also EA at 48-49 (“As explained in our April 2019 FEIS . . . the Valley Crossing Pipeline’s volume is fully subscribed by end users in Mexico; this remains accurate . . . As such, the Valley Crossing Pipeline cannot provide the entire required capacity or a portion of this capacity on a firm basis. Therefore, we do not consider the Valley Crossing Pipeline to be a viable system alternative to the Project Amendment, and we did not consider it further.”).

D. The CCS Project Is Not a “Connected Action,” and the Commission Did Not Need to Consider Its Impacts in the Remand Order.

Movants fault the scope of the Commission’s analysis in the Remand Order for failing to address a proposed CCS project related to the Terminal that is pending before the Commission in Docket No. CP22-17.¹⁹⁸ As to the Pipeline Project specifically, Movants suggest that the “CCS proposal is . . . a connected action” that must be considered “before approving the Terminal and pipeline.”¹⁹⁹ Movants are wrong. The Pipeline Project and the Terminal together have independent utility and therefore are not “connected actions” with the CCS project.

Under NEPA, the scope of an agency’s review must encompass “connected actions.”²⁰⁰ Most courts, including the D.C. Circuit, employ an “independent utility” test to determine whether two actions are connected. Two projects have independent utility and are not “connected” for NEPA purposes “[w]hen one of the projects might reasonably have been completed without the existence of the other.”²⁰¹ Put simply, when one project will proceed with or without the second, they have independent utility and are not connected actions.²⁰²

¹⁹⁸ Rehearing Request at 10-15, 47-48.

¹⁹⁹ *Id.* at 13.

²⁰⁰ Actions are connected if they: “(i) automatically trigger other actions which may require environmental impact statements; (ii) cannot or will not proceed unless other actions are taken previously or simultaneously; or (iii) are interdependent parts of a larger action and depend on the larger action for their justification.” 40 C.F.R. § 1501.9(e)(1).

²⁰¹ *Great Basin Mine Watch v. Hankins*, 456 F.3d 955, 969 (9th Cir. 2006); *see also Coal. on Sensible Transp., Inc.* 826 F.2d at 69 (finding independent utility when “one project will serve a significant purpose even if a second related project is not built”).

²⁰² *Hudson River Sloop Clearwater, Inc. v. Dep’t of Navy*, 836 F.2d 760, 763 (2d Cir. 1988) (a port project, and a later-in-time housing project that depended on the port project, were not connected because the port project would proceed without the housing project).

The Pipeline Project and Terminal will together proceed with or without the CCS project, and thus, the Commission has no obligation to consider the CCS project in conjunction with the Pipeline Project and Terminal. Movants disagree, claiming that because the CCS project will have no purpose and will not proceed without the Terminal, the two are interdependent and “connected” for NEPA purposes. But the fact that the second project is “dependent” on the first project does not show they are “interdependent.” Moreover, two projects are not connected actions under NEPA merely because the developers envisioned the projects as part of a larger development plan.²⁰³ The requisite question is “whether one project will serve a significant purpose even if a second related project is not built,”²⁰⁴ and Movants have failed to show that the Pipeline Project and the Terminal will only proceed if the CCS project proceeds.

To the extent Movants argue that the Pipeline Project specifically is a connected action with the CCS Project, that is plainly incorrect. Rio Bravo is contractually obligated to construct the Pipeline Project,²⁰⁵ and this contractual obligation is not contingent upon whether the CCS project is approved. Moreover, Rio Bravo’s contractual obligations impose meaningful deadlines on Rio Bravo and, again, the CCS project has no bearing on Rio Bravo’s deadlines related to the Pipeline Project: the Pipeline Project must be built, and will serve a significant purpose even if the CCS project is not built.

Movants cannot “connect” the CCS Project to either (or both) of the Terminal or the Pipeline Project for NEPA purposes simply by identifying the “CCS’s potential

²⁰³ *NRDC*, 879 F.3d at 1209.

²⁰⁴ *See Coal. on Sensible Transp., Inc.*, 826 F.2d at 69.

²⁰⁵ Amendment Application at 3.

benefits.”²⁰⁶ The fact that the CCS Project may have benefits is irrelevant, because “if such mutual benefits compelled aggregation, no project could be said to enjoy independent utility.”²⁰⁷

Movants alternatively argue that the CCS project constitutes “significant new information” triggering the need for supplemental NEPA analysis,²⁰⁸ but as described in Section II.B.3, supplementation is only necessary when the significant new information (1) relates to the proposed action or its impacts and (2) provides a seriously different picture of the environmental landscape. Movants fail on both fronts. First, CCS project details are information not about “the proposed action,” but are about a different non-connected proposed action. Second, whether the CCS project goes forward or not has no bearing on the environmental impacts associated with the Commission’s approval of the Pipeline Project. Finally, Movants’ passing half-sentence suggestion that the Commission was obligated to “consider[] whether to require [the CCS project] pursuant to FERC’s Natural Gas Act authority”²⁰⁹—an assertion too brief and obscure to even preserve an issue for the Commission’s consideration²¹⁰—cites no relevant authority imposing such an obligation and Rio Bravo is aware of none.²¹¹

²⁰⁶ Rehearing Request at 13.

²⁰⁷ *Coalition on Sensible Transp. Inc.*, 826 F.2d at 69.

²⁰⁸ Rehearing Request at 14.

²⁰⁹ Rehearing Request at 48.

²¹⁰ See *supra* n.76; *Ctr. for Biological Diversity*, 2023 WL 3470860 at *5 (argument based on citation of regulation “one time, in a ‘see, e.g.’ citation” was “not sufficient” to preserve any issue for the Commission’s or the court’s consideration).

²¹¹ Movants briefly cite NGA Section 3(e)(3)(A), but that provision merely states, permissively, that the Commission “may” impose “terms and conditions” that it “find[s] necessary or appropriate”).

E. The Commission Lacks Sufficient Information About Upstream Production and Need Not Supplement its NEPA Analysis to Address Impacts that the Agency Does Not Cause, and That Are Not Reasonably Foreseeable.

Movants assert that because Rio Grande is seeking to enable “the development of a responsibly sourced natural gas supply chain from leading producers in the Permian Basin and Eagle Ford Shale,” the Commission must prepare a supplemental NEPA document to address environmental impacts of production from those sources.²¹² This is not the case. As discussed in Section II.B.1, an agency’s continuing obligation to consider significant new information that comes to light after it issues its NEPA document extends only to new information regarding environmental impacts that may not have been appreciated or considered when the NEPA document was prepared. As explained below, Rio Grande’s statement does not raise any *environmental impacts* that the Commission must consider under NEPA.

As it relates to potential indirect effects, such as effects from upstream production, NEPA only requires analysis of those effects if they are both proximately caused by the proposed action and are reasonably foreseeable.²¹³ Neither of these factors are satisfied here. There must be a “reasonably close causal relationship” between the Commission’s action and increased natural gas drilling in the supply region before NEPA requires that FERC analyze the effects of that development.²¹⁴ Here, FERC’s action is the approval of the Amendment Application for the Pipeline Project. The Commission has stated numerous times that “the environmental effects resulting from natural gas production are generally neither caused by a proposed pipeline project nor are they reasonably foreseeable

²¹² Request for Rehearing at 48-50.

²¹³ 40 C.F.R. 1508.1(g)(2); *see also Dep’t of Trans.* 541 U.S. at 767-70.

²¹⁴ *See Metro. Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 773-74 (1983).

consequences of our approval of an infrastructure project, as contemplated by the [CEQ] regulations.”²¹⁵ The Commission has explained that natural gas production is caused by “a number of factors, such as domestic natural gas prices and production costs,” and not the Commission’s approval of natural gas infrastructure projects.²¹⁶

Movants make no attempt to identify any actual natural gas production that would be induced by the Pipeline Project, and no such causal connection exists. Regardless of whether the already-broad areas of the Permian Basin and Eagle Ford shale have been mentioned as possible sources of gas supply, the Pipeline Project is designed to provide ready access to a major hub of intrastate and interstate pipelines and take advantage of its variety of natural gas sources from all over the country.²¹⁷ This hub includes interconnections to some of the largest intrastate pipeline systems in Texas, including Houston Pipe Line Company, the Kinder Morgan Texas and Kinder Morgan Tejas Pipeline systems, and EPGT Texas Pipeline, L.P., as well as some of the largest interstate pipelines traversing Southeast Texas, including Gulf South Pipeline Company, LLC, Natural Gas Pipeline Company of America L.L.C., Transcontinental Gas Pipe Line Company, LLC and Tennessee Gas Pipeline Company, L.L.C..²¹⁸ These pipelines provide access to numerous sources of natural gas across North America, and connectivity through the hub provides

²¹⁵ *Dominion Transmission, Inc. Order on Rehearing*, 163 FERC ¶ 61,128, at P 59 (2018) (“*Dominion Transmission Order on Rehearing*”); *see also Central New York Oil and Gas Co., LLC*, 137 FERC ¶ 61,121, at PP 81-107 (2011); *order on reh’g*, 138 FERC ¶ 61,104, at PP 33-49 (2012); *petition for review dismissed sub nom. Coal. for Responsible Growth v. FERC*, 485 Fed. Appx. 472, 474-75 (2012).

²¹⁶ *Dominion Transmission Order on Rehearing* at P 60.

²¹⁷ FEIS at ES-2, 1-1 to 1-4.

²¹⁸ Application for Authorization Under the Natural Gas Act of Rio Grande LNG, LLC and Rio Bravo Pipeline Company, LLC, at 12 & n.9, Docket Nos. CP16-454-000 and CP16-455-000 (May 5, 2016).

necessary flexibility in supply sources to attract potential customers.²¹⁹ Given the expected flexibility of supply sources throughout the Pipeline Project's lifetime, Rio Bravo cannot identify any specific upstream production that would be foreseeably induced by the Commission's action here, nor does it have information about whether the natural gas to be transported by the Pipeline Project is from new or existing production.

Further, even if the specific supply basins were ascertainable, it is impossible to meaningfully predict production-related impacts, which are dependent on a number of factors, not just the general region of production. While shippers such as Rio Grande may contract with a specific producer for its gas supply, it would be nearly impossible for the shipper (and in turn the pipeline company) to know the exact sources of production in advance.²²⁰ Courts have upheld NEPA analyses where these details were not ascertainable. For example, in *Sierra Club v. U.S. Department of Energy*, LNG export opponents challenged the Department of Energy's conclusion that there was not sufficiently specific information to identify where incremental production would occur to support such exports.²²¹ Rejecting arguments that NEPA required a more detailed analysis of localized upstream impacts, the court explained that the decision not to engage in further analysis was "consistent with the 'rule of reason'" given the difficulty of determining where

²¹⁹ *Id.* at 22.

²²⁰ *Dominion Transmission Order on Rehearing* at P 61. *See also Del. Riverkeeper Network*, 45 F.4th at 111; *Birckhead*, 925 F.3d at 525.

²²¹ 867 F.3d 189, 201 (D.C. Cir. 2017).

incremental production would occur and how it would affect particular environmental resources.²²²

III. CONCLUSION

For the reasons explained above, the Commission acted reasonably in issuing the Remand Order. The Commission has developed a detailed record and has allowed for extensive public comment related to the Terminal and the Pipeline Project, including unprecedented opportunities for public comment on the specific, narrow issues remanded to the Commission by the D.C. Circuit and put before the Commission in the Amendment Application. The Commission correctly reaffirmed in the Remand Order that, after additional review of the matters remanded by the D.C. Circuit and consideration of the proposed Pipeline Project design changes set forth in the Amendment Application, and in light of the conditions set forth by the Commission, the Terminal is not inconsistent with the public interest and the Pipeline Project is required by the public convenience and necessity. Accordingly, for the foregoing reasons, Rio Bravo respectfully requests that the Commission accept this Answer and deny the Rehearing Request.

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²²² *Id.* at 200. “At a certain point, the Department’s obligation to drill down into increasingly speculative projections about regional environmental impacts is also limited by the fact that it lacks any authority to control the locale or amount of export induced gas production, much less any of its harmful effects.” *Id.*

Respectfully submitted,

/s/ P. Martin Teague

P. Martin Teague

Vice President & Strategic Advisor

Rio Bravo Pipeline Company, LLC

2701 N. Rocky Point Dr., Suite 1050

Tampa, Florida 33607

Phone: (813) 282-6605

Email: Marty.Teague@enbridge.com

Emery J. Biro, III

Associate General Counsel

Rio Bravo Pipeline Company, LLC

915 N. Eldridge Parkway, Suite 1100

Houston, Texas 77079

Phone: (713) 627-4740

Email: emery.biro@enbridge.com

James D. Seegers

Damien R. Lyster

Vinson & Elkins L.L.P.

845 Texas Ave., Suite 4700

Houston, Texas 77002

Phone: (713) 758-2939

Email: jseegers@velaw.com

dlyster@velaw.com

Attorneys for

Rio Bravo Pipeline Company, LLC

June 6, 2023

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the Official Service List compiled by the Secretary in this proceeding.

Dated at Houston, TX, this 6th day of June, 2023.

/s/ Michael P. Malenfant

Michael P. Malenfant

On behalf of

Rio Bravo Pipeline Company, LLC

CERTIFICATE OF SERVICE

I hereby certify that on this 9th day of March, 2024, I electronically filed the foregoing Joint Appendix with the Clerk of the Court using the CM/ECF system, which will send notice of such filing to all registered CM/ECF users.

/s/ Nathan Matthews

Nathan Matthews

Sierra Club

2101 Webster St., Suite 1300

Oakland, CA 94612

415-977-5695

nathan.matthews@sierraclub.org

*Attorney for Carrizo Comecrudo Tribe
of Texas, Sierra Club, and Vecinos
para el Bienestar de la Comunidad
Costera*